

MI COVID RESPONSE DATA AND MODELING UPDATE

NOTE: All data as of May 15 unless otherwise noted

May 18, 2021

Executive summary

Percent Positivity is down 21% and **Case Rate** is down 34% since last week. Positivity (8.5%, ↓2.3%) and case rates (210.3, ↓101.2) have decreased for five weeks

Michigan has the **2nd highest number of cases** (↔), and **highest case rate** (↔) in the last 7 days (source: CDC COVID Data Tracker)

Percent of inpatient beds occupied by individuals with COVID has decreased 21% since last week and are decreasing for 3 weeks. There are 10.4% (↓2.8%) inpatient beds occupied by COVID-19 patients.

Michigan has the **highest inpatient bed utilization** (↔), and the **highest adult ICU bed utilization** (↑1) in the country (source: US HHS Protect)

Deaths have decreased 13% since last week. There were 393 COVID deaths (↓38) between May 2 and May 8, and the **Death Rate** is 5.6 deaths per million residents (↓0.6)

Michigan has the **3rd highest number of deaths** (↑2), and **highest death rate** (↔) in the last 7 days (source: CDC COVID Data Tracker)

The 7-day average **state testing rate** has decreased to 2,601.2 tests/million/day (↓596.9). **Daily diagnostic tests (PCR)** is 25.9K per day (↓5.9), and the **weekly average for PCR and antigen tests** conducted in Michigan is 50.4K (↓10.7K).

8.1 million **COVID-19 vaccine** doses reported to CDC, 56.5% of Michigan population 16+ has at least one dose

Comparison across states: Summary

What we see today (data through 5/15):

- 0 states are seeing increasing 1 week case trends ($\geq 10\%$) (same as last week)
- 3 states are seeing 1 week increases ($\geq 10\%$) in new COVID hospital admissions (down vs. 6 last week)
- Michigan, DC, Pennsylvania, Florida and West Virginia have highest per capita hospitalized patient numbers.
- Midwest (case data from CDC as of 5/16):
 - Wisconsin with stable hospitalizations (67/M) and decrease in cases (62/100k last 7d)
 - Indiana with decrease in hospitalizations (121/M), and decrease in cases (88/100k last 7d)
 - Illinois showing decrease in hospitalizations (130/M), and decrease cases (93/100k last 7d)
 - Ohio with decrease hospitalizations (110/M) and decrease in cases (64/100k last 7d)
 - Michigan showing decrease in hospitalizations (207/M) and decrease in cases (144/100k last 7d)

COVID-19 Spread

Statewide positivity has decreased to 8.5%

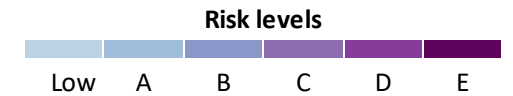
- One week decrease of 21% (vs. 14% decrease last week)
- Decreasing for five weeks (54% decrease since April 8 high)
- Positivity is declining in most MERC regions and remains above 7% in seven regions

Case rate (210.3 cases/million) is decreasing in the state (311.5 cases/million last week)

- One week decrease of 34% (vs. 24% decrease last week)
- Decreasing for five weeks (69% decrease since April 11 high)
- Cases per million are declining in all MERC regions
- Variants in Michigan: 9,950 confirmed B.1.1.7; 57 confirmed B.1.351; 287 confirmed B.1.427/B.1.429 ; 179 confirmed P.1
- Number of active outbreaks is down 5% from last week
 - Reported school outbreaks have decreased since last week (345 to 297)
 - High schools continue to experience the highest number of outbreaks (118)
 - In the past week, the highest number of new clusters have been identified in baseball/softball, and track and field

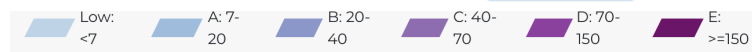
Confirmed and probable case indicators

Table Date: 5/15/2021 (7 days from date table was produced: 5/8/2021)



| | Overall Risk Level | Absolute Cases (per million) | CDC Case Trend | Average Percent Positivity | Positivity Trend | Tests (per million) | % IP Beds Occupied by COVID-19 Cases | % Occupied IP Beds Trend | Absolute Deaths (per million) | Death Trend |
|-----------------|--------------------|------------------------------|-------------------|----------------------------|------------------|---------------------|--------------------------------------|--------------------------|-------------------------------|-----------------|
| Detroit | E | 190.4 | decline [33 days] | 7.7 | Decrease - 5wk | 2588.6 | 10.4 | Decrease - 3wk | 6.0 | Decrease - 1wk |
| Grand Rapids | E | 283.9 | decline [27 days] | 10.9 | Decrease - 4wk | 2854.8 | 12.2 | Decrease - 3wk | 3.5 | Increase - 5wk |
| Kalamazoo | E | 231.4 | decline [29 days] | 9.5 | Decrease - 4wk | 2340.3 | 10.7 | Decrease - 3wk | 4.8 | Increase - 1wk |
| Saginaw | E | 253.8 | decline [31 days] | 10.9 | Decrease - 4wk | 2391.8 | 9.7 | Decrease - 3wk | 8.4 | Increase - 1wk |
| Lansing | E | 159.4 | decline [35 days] | 7.8 | Decrease - 4wk | 2103.7 | 12.6 | Decrease - 3wk | 7.6 | Increase - 1wk |
| Traverse City | E | 176.6 | decline [32 days] | 8.8 | Decrease - 1wk | 1773.0 | 6.4 | Decrease - 4wk | 4.2 | <20 wkly deaths |
| Jackson | E | 224.3 | decline [31 days] | 8.3 | Decrease - 4wk | 2902.7 | 13.3 | Decrease - 3wk | 6.1 | <20 wkly deaths |
| Upper Peninsula | E | 165.5 | decline [29 days] | 4.3 | Decrease - 4wk | 2616.8 | 3.4 | Decrease - 3wk | 4.2 | <20 wkly deaths |
| Michigan | E | 210.3 | decline [32 days] | 8.5 | Decrease - 5wk | 2601.2 | 10.4 | Decrease - 3wk | 5.6 | Decrease - 2wk |

Cases

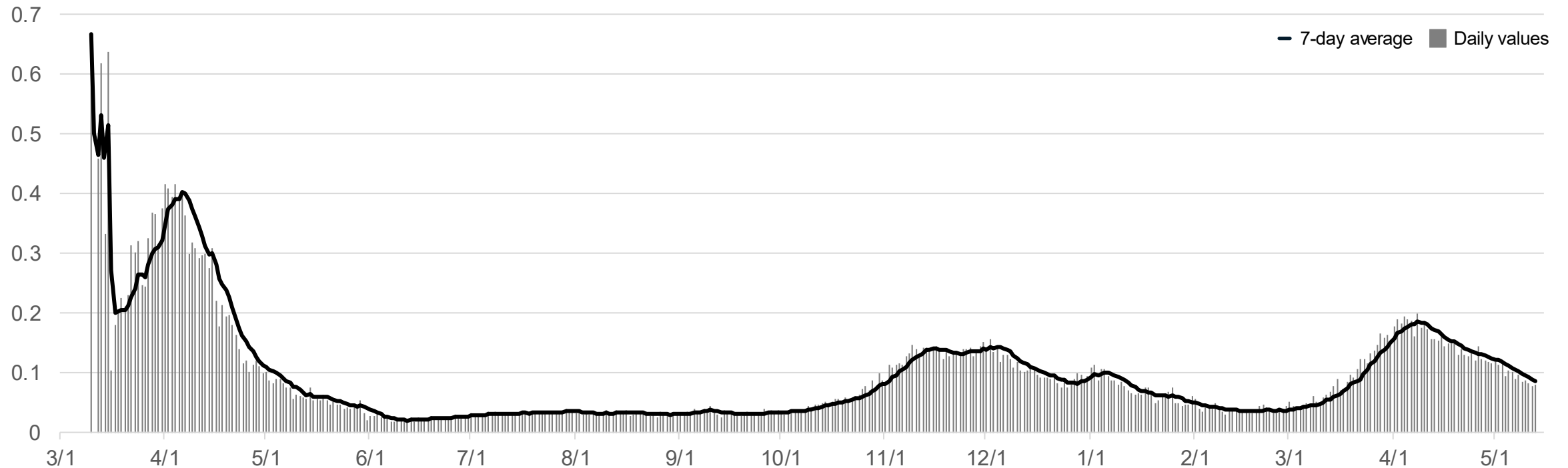


Positivity



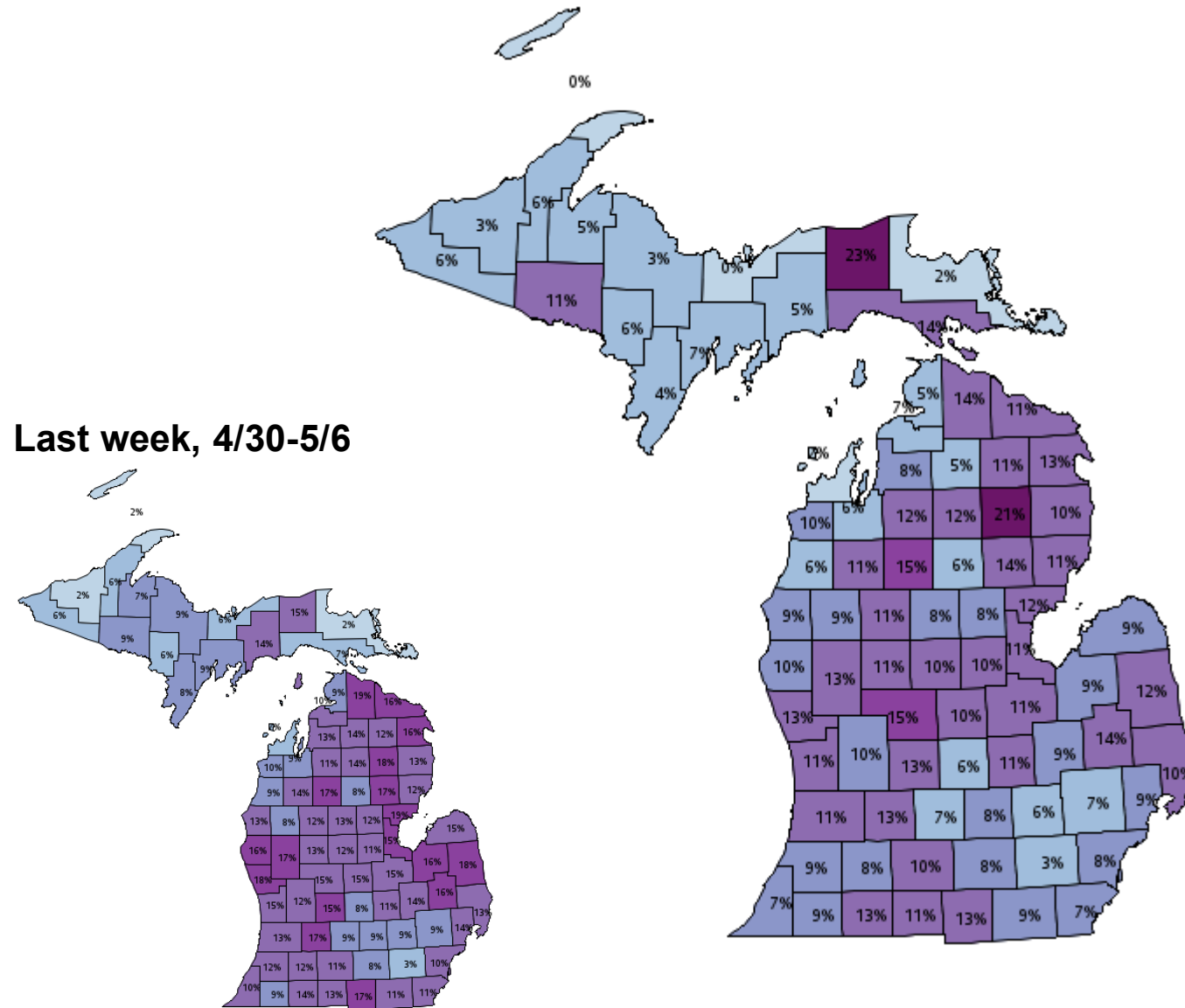
Statewide Positivity Trends

Daily positivity and 7-day rolling average positivity for Michigan



- Early in the pandemic, testing was not as robust as it has been since July 2020 to present
- Positivity is an indicator of whether we are testing enough to identify cases and an early indicator of SARS-CoV-2 transmission (as positivity decreases, we expect case rates to follow)
- **Positivity decreased by 21% between this week and last**
- Note: These are for PCR tests only and exclude tests conducted with Michigan Department of Corrections

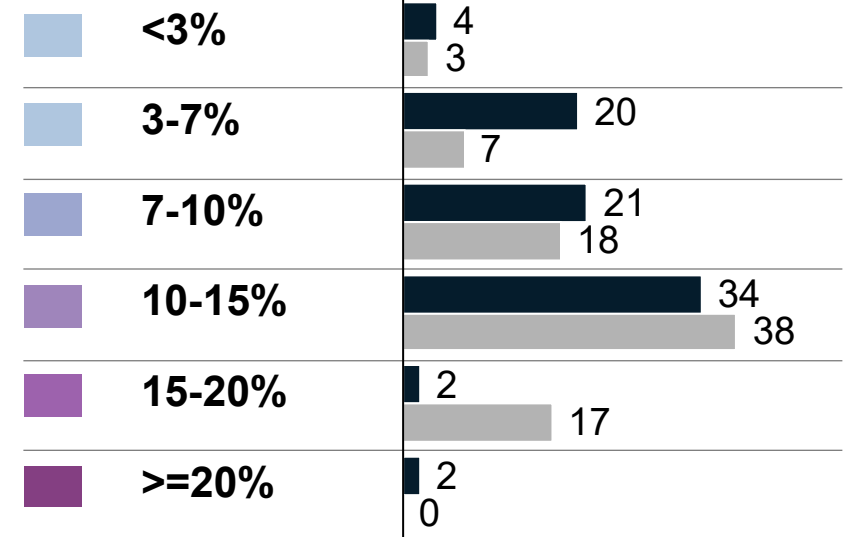
Positivity by county, 5/7-5/13



**Average
positivity per day**

of counties

■ This week
■ Last week



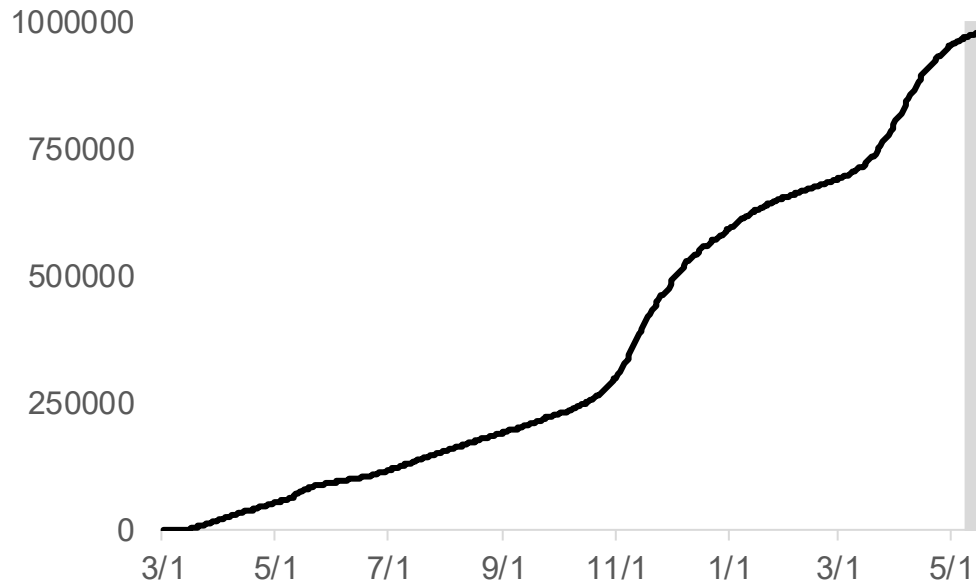
Updates since last week:

38 of 83 counties saw double digit positivity in the last week (17 county decrease)

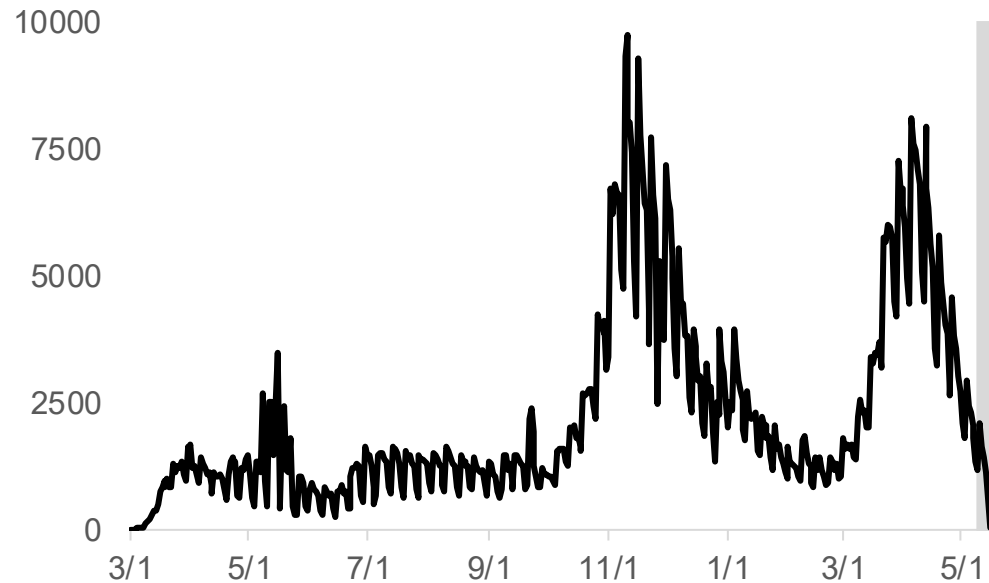
59 of 83 counties saw positivity > 7% in the last week (14 county decrease)

COVID-19 cases by onset date: State of Michigan

Cumulative confirmed and probable cases by date of onset of symptoms



New confirmed and probable cases by date of onset of symptoms

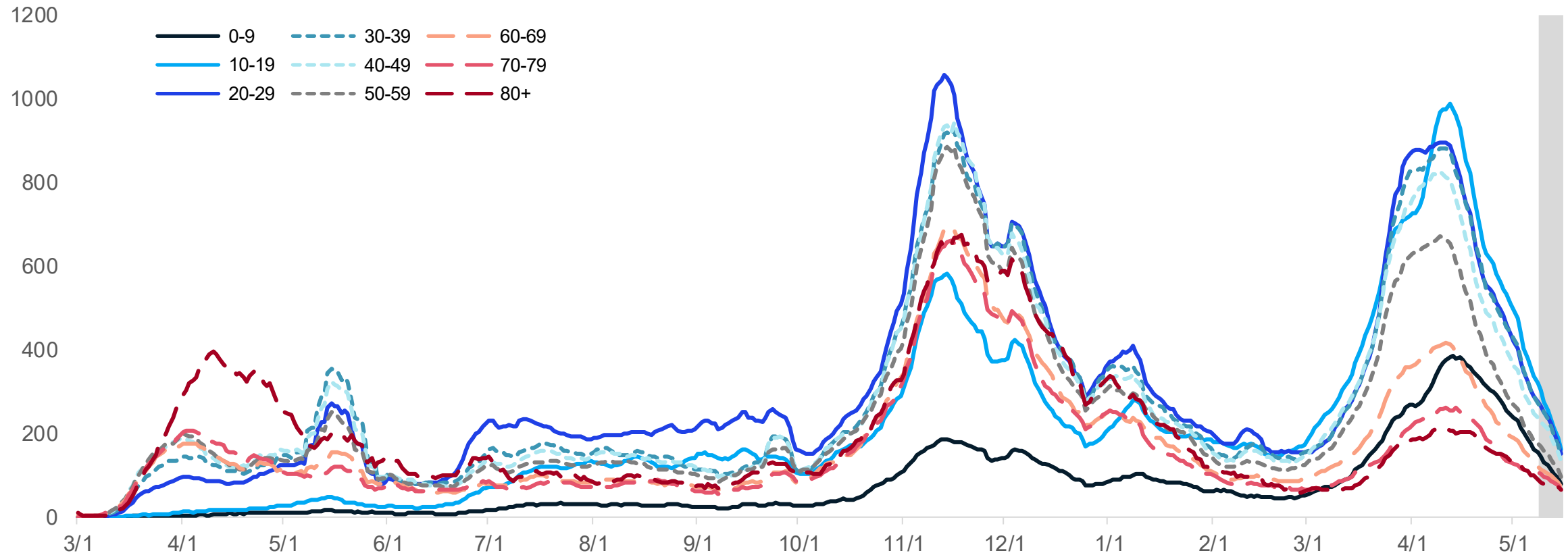


Updates since last week:

- Cases have decreased for five weeks
- Statewide case rate is at risk level E (above 150 cases/million)
- There are over 2,100 new cases per day (data through 5/8) which is down 1,000 from the prior week
- Over 975,000 cases since Mar 1, 2020

Age group: average new daily cases

Daily new confirmed and probable cases per million by age group (7-day rolling average)



- All age groups by decade are decreasing
- Those aged 10-19 have the highest case rates, followed by 20-29 and 30-39 age groups
- Case rates for all age groups under 60 years are above 150 cases per million (Risk Level E)

Age group: average new daily cases and daily case rate

Daily new confirmed and probable cases per million by age group (7-day rolling average)

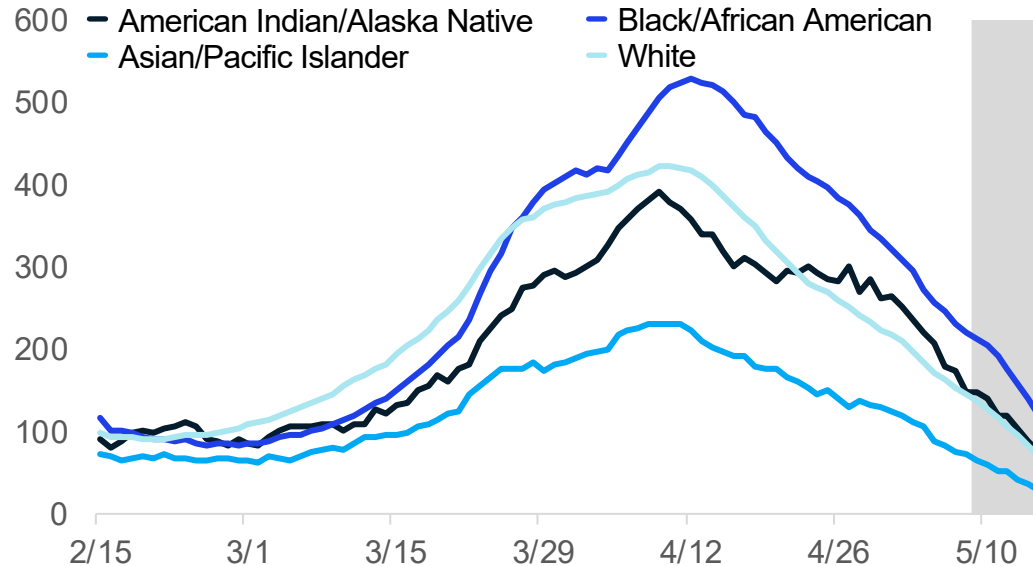
| Age Group | Average daily cases | Average Daily Case Rate | One Week % Change (Δ #) | % Change since 4/11/21* (Δ #) |
|--------------------|---------------------|-------------------------|---------------------------------|---------------------------------------|
| 0-9 | 178.1 | 154.5 | -36% (-98) | -59% (-256) |
| 10-19 | 401.6 | 320.0 | -35% (-220) | -67% (-822) |
| 20-29 | 382.0 | 276.9 | -34% (-199) | -69% (-853) |
| 30-39 | 331.3 | 273.9 | -36% (-187) | -69% (-739) |
| 40-49 | 280.6 | 237.9 | -34% (-146) | -71% (-677) |
| 50-59 | 238.9 | 176.9 | -35% (-127) | -73% (-658) |
| 60-69 | 155.7 | 122.1 | -36% (-88) | -71% (-374) |
| 70-79 | 82.1 | 107.1 | -16% (-15) | -59% (-118) |
| 80+ | 36.7 | 88.6 | -36% (-21) | -58% (-51) |
| Total [¶] | 2,106.3 | 210.3 | -34% (-1,051) | -69% (-4,722) |

* Highest 7-day avg. following spring 2021 surge
[¶] Total may not reflect state due to missing age data

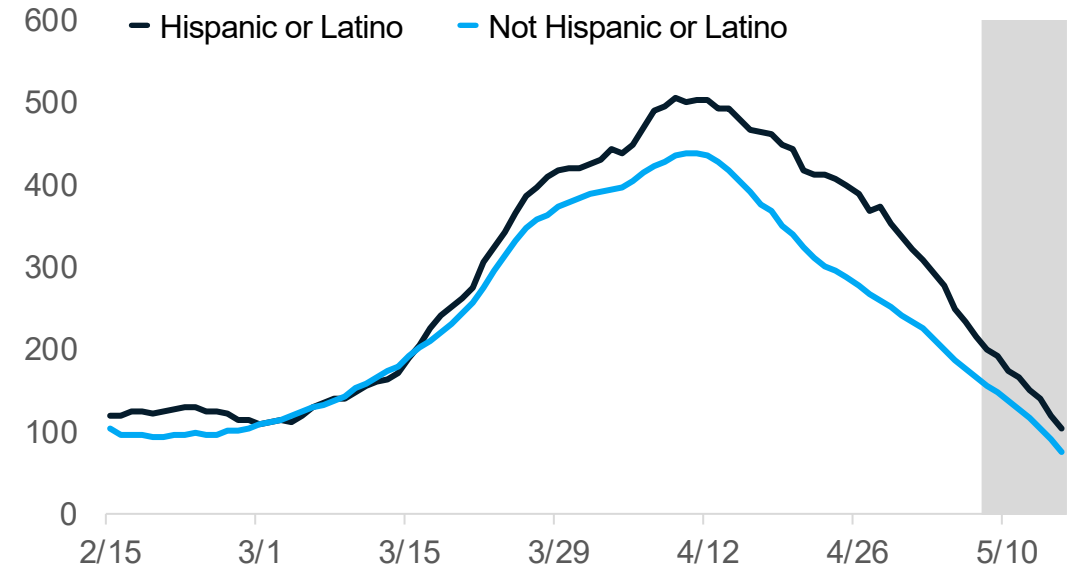
- Daily number of cases (401.6) and daily case rate (320.0 cases/mil) are currently highest for those 10-19
- All age groups under 60 are experiencing an average of more than 150 cases per day
- Since April 11, case rates have decreased more than 50% for all age groups

Average daily new cases per million people by race and ethnicity

Daily new confirmed and probable cases per million (7 day rolling average) by race category



Daily new confirmed and probable cases per million (7 day rolling average) by ethnicity category



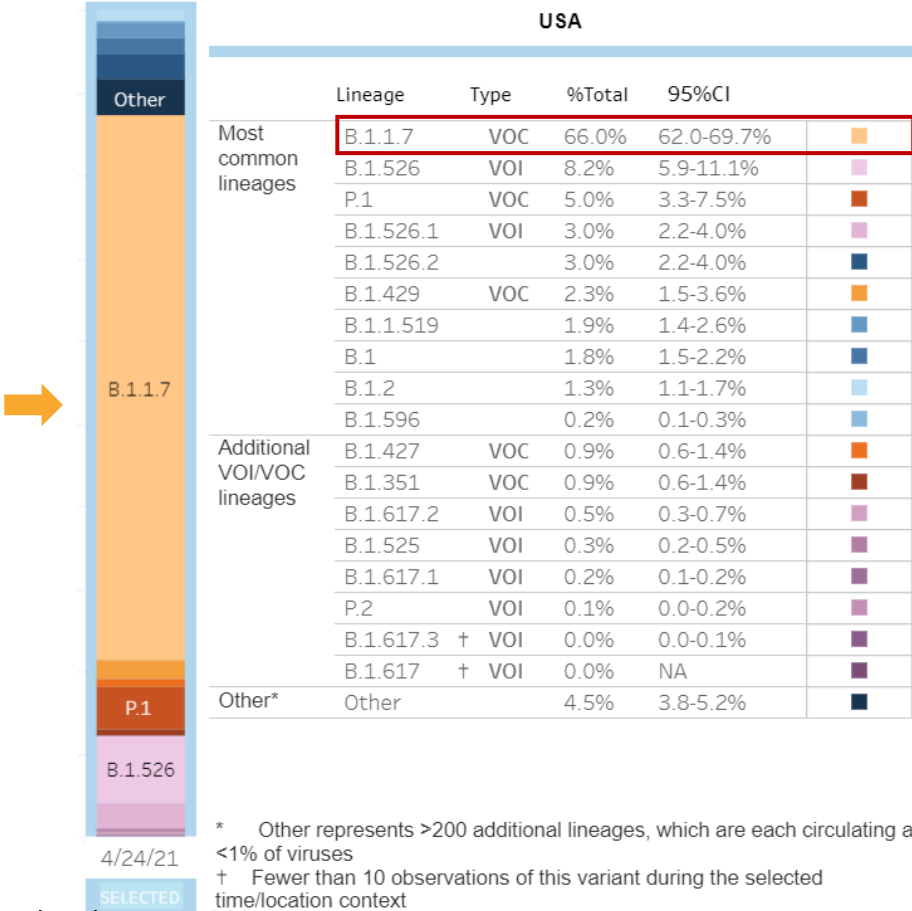
Updates since last week:

- Cases per million are decreasing for all races and ethnicities
- **Blacks and Hispanic/Latinos continue to have the highest case rates**
- In the past 30 days, 29% of all cases represent unknown, multiple, or other races (23% of race is unknown, ↓4%)
- In the past 30 days, 27% of all cases have an unknown ethnicity reported (↓4%)

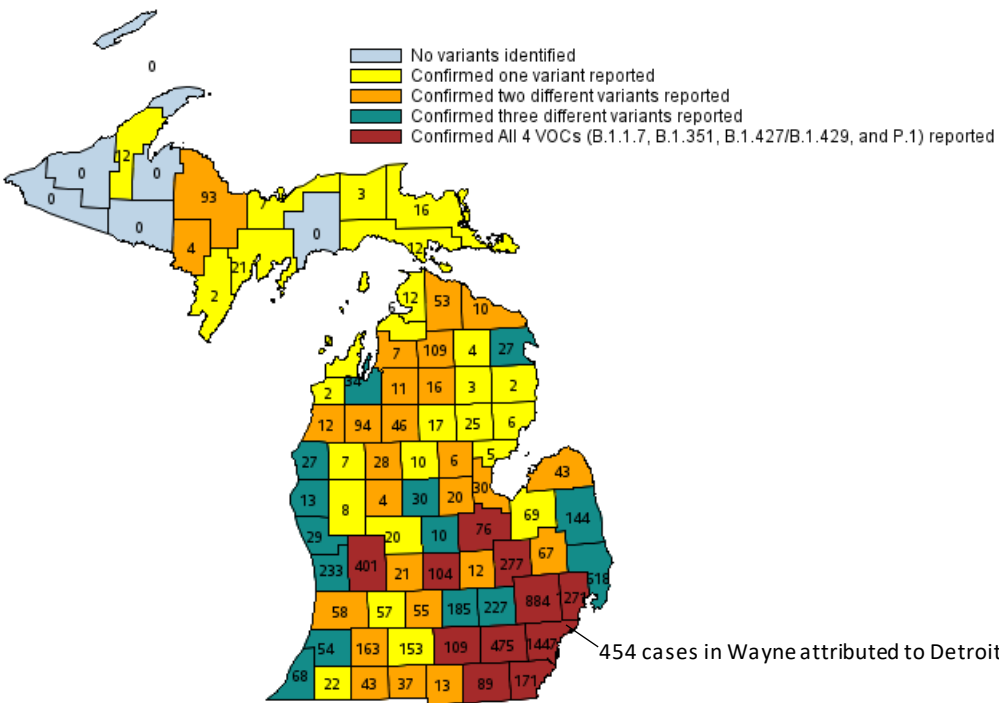
Note: Case information sourced from MDHHS and reflects date of death of confirmed and probable cases.
Source: MDHHS – Michigan Disease Surveillance System

Identified COVID-19 Cases Caused by All Variants of Concern (VOC) in US and Michigan

SARS-CoV-2 Variants Circulating in the United States, Mar 28 – Apr 10



Variants of Concern in Michigan, May 17



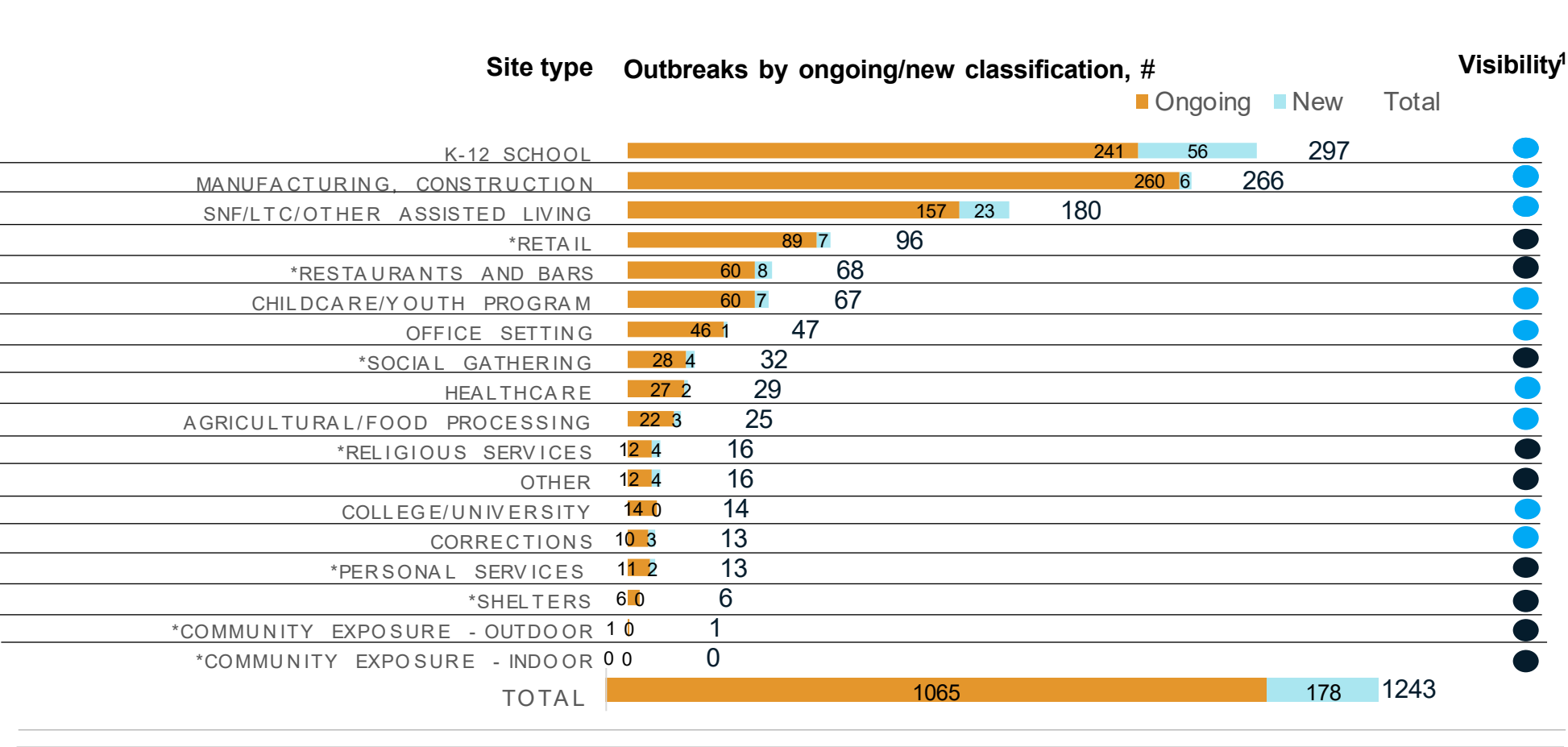
| Variant | MI Reported Cases [¶] | # of Counties | CDC est. prevalence |
|-----------------|--------------------------------|---------------|---------------------|
| B.1.1.7 | 9,590* | 77 | 76.7% |
| B.1.351 | 57 | 20 | 0.6% |
| B.1.427/B.1.429 | 287 | 43 | 2.0% |
| P.1 | 179 | 27 | 1.9% |

* 533 cases within MDOC; [¶] Numerous cases with county not yet determined

Number of outbreak investigations by site type, week ending May 13

Pre-decisional, for discussion only Draft

- Easier to identify outbreak
- Harder to identify outbreak



Total number of active outbreaks is about the same from previous week

Following K-12 (56), the greatest number of new outbreaks were reported in SNF/LTC (23), bars & restaurants (8), retail (7), childcare/ youth programs (7), and manufacturing/ construction (6)

LHDs reported new outbreaks in all settings except in College and Universities, Religious Services, Shelters, and both Indoor and Outdoor Community Exposures.

1. Based on a setting's level of control and the extent of time patrons/residentsspend in the particular setting, different settingshave differing levels of ability to ascertain whether a case derived from that setting

NOTE: Many factors, including the lack of ability to conduct effective contact tracing in certain settings, may result in significant underreporting of outbreaks. This chart does not provide a complete picture of outbreaks in Michigan and the absence of identified outbreaks in a particular setting in no way provides evidence that, in fact, that setting is not having outbreaks.

Source: LHD Weekly Sitreps

K-12 school outbreaks, recent and ongoing, week ending May 13

Number of reported outbreaks remains high this week (297) with the most ongoing outbreaks in High Schools (118), followed by Pre-K – Elementary (99), Middle/Jr High (71), and Administrative (7).

| Region | Number of reported cases, # | # Ongoing - Excluding New | # New | Number of outbreaks | Range of cases per outbreak |
|-----------|-----------------------------|---------------------------|-------|---------------------|-----------------------------|
| Region 1 | 53514 | | | 66 | 2-39 |
| Region 2n | 16949 | | | 75 | 2-14 |
| Region 2s | 4223 | | | 14 | 2-15 |
| Region 3 | 31552 | | | 56 | 2-58 |
| Region 5 | 6317 | | | 15 | 2-28 |
| Region 6 | 23735 | | | 30 | 2-47 |
| Region 7 | 1796 | | | 28 | 2-28 |
| Region 8 | 7611 | | | 13 | 2-21 |
| Total | 1,616207 | | | 297 | 2-58 |

| Grade level | Number of reported cases, # | # Ongoing - Excluding New | # New | Number of outbreaks | Range of cases per outbreak |
|------------------------|-----------------------------|---------------------------|-------|---------------------|-----------------------------|
| Pre-school - elem. | 35062 | | | 99 | 2-21 |
| Jr. high/middle school | 32151 | | | 73 | 2-23 |
| High school | 93293 | | | 118 | 2-58 |
| Administrative | 131 | | | 7 | 2-13 |
| Total | 1,616207 | | | 297 | 2-58 |

Many factors, including the lack of ability to conduct effective contact tracing in certain settings, may result in significant underreporting of outbreaks. This chart does not provide a complete picture of outbreaks in Michigan and the absence of identified outbreaks in a particular setting in no way provides evidence that, in fact, that setting is not having outbreaks.
Source: LHD Weekly Sitreps

COVID-19 K-12 Sports Related Clusters and Cases

Cumulative Since Jan 2021 through May 2021



491 cases
124 clusters



366 cases
60 clusters



283 cases
73 clusters



108 cases
23 clusters



71 cases
36 clusters



49 cases
16 clusters



46 cases
17 clusters



36 cases
9 clusters

44 cases
4 clusters



27 cases
10 clusters



26 cases
12 clusters



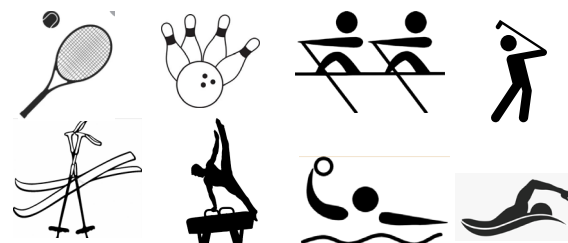
19 cases
10 clusters



14 cases
3 clusters



34 cases
21 clusters



- Cases identified by local public health which include school-affiliated and club/travel/regional sports (spectators, collegiate, and professional sports as well as secondary cases to collegiate/professional sports are excluded)
- Since January 2021, basketball, hockey, and wrestling have had the highest number of cases and clusters
- Largest number of new clusters identified in spring sports of baseball/softball, track, volleyball, lacrosse, and soccer
- Cases and clusters have occurred in 24 different sport settings

COVID-19 and Healthcare Capacity and COVID Severity

Hospitalizations and ICU utilization are decreasing

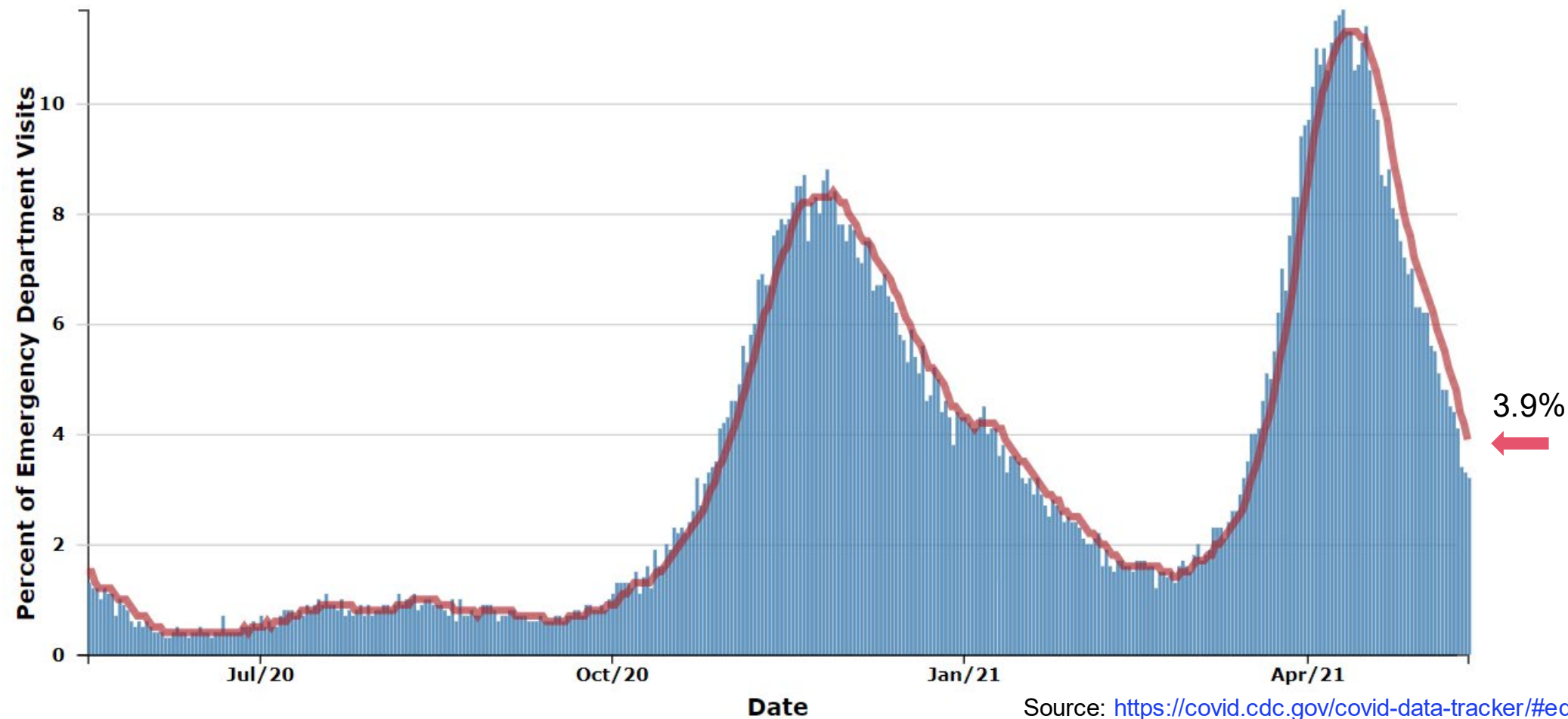
- COVID-like illness (CLI) has fallen to 3.9% (vs. 5.3% last week)
- Hospital admissions are decreasing statewide and for most age groups
- Hospitalizations down 23% since last week (vs. 22% decline week prior)
- All regions are showing decline in hospitalization trends this week
- Volume of COVID-19 patients in intensive care has decreased 28% since last week (vs. 15% decline week prior)

Death rate has decreased to 5.6 daily deaths per million people

- 13% decrease since last week (vs. 12% decrease last week)
- 24% decrease since April 23 peak
- Proportion of deaths among those *under 60 years* of age is increasing

Michigan Trends in Emergency Department Visits for COVID-19-Like Illness (CLI)

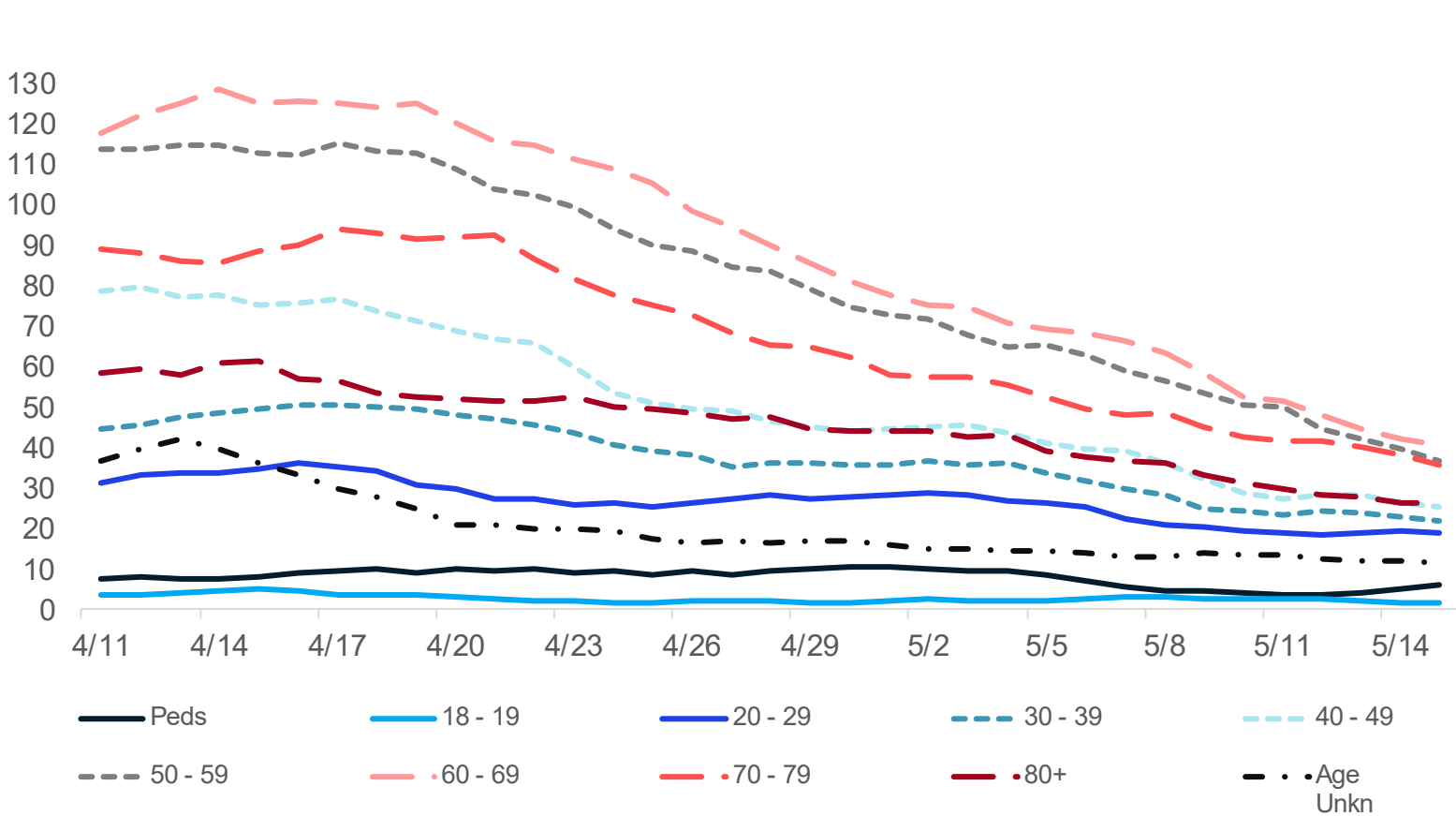
Percentage of ED visits with Diagnosed COVID-19 in Michigan



Source: <https://covid.cdc.gov/covid-data-tracker/#ed-visits>

Average Hospital Admissions by Age

Confirmed COVID-19 Hospital Admissions by Age Group - Statewide Rolling Weekly Average



| Age Group | Daily Avg Adm. | One Week % Change (#) | % Change since 4/14* (#) |
|--------------------|----------------|-----------------------|--------------------------|
| Peds | 5.9 | 28% (1-5) | -21% (-1-5) |
| 18-19 | 1-5 | -48% (1-5) | -68% (-1-5) |
| 20-29 | 18.9 | -9% (-1-5) | -44% (-14.9) |
| 30-39 | 21.7 | -24% (-6.7) | -55% (-26.7) |
| 40-49 | 25.4 | -29% (-10.6) | -67% (-52.4) |
| 50-59 | 36.7 | -35% (-19.6) | -68% (-77.7) |
| 60-69 | 40.7 | -36% (-22.6) | -68% (-87.6) |
| 70-79 | 35.6 | -26% (-12.7) | -58% (-49.9) |
| 80+ | 26.3 | -27% (-9.7) | -57% (-34.4) |
| Total [¶] | 224.4 | -28% (85.1) | -63% (-376) |

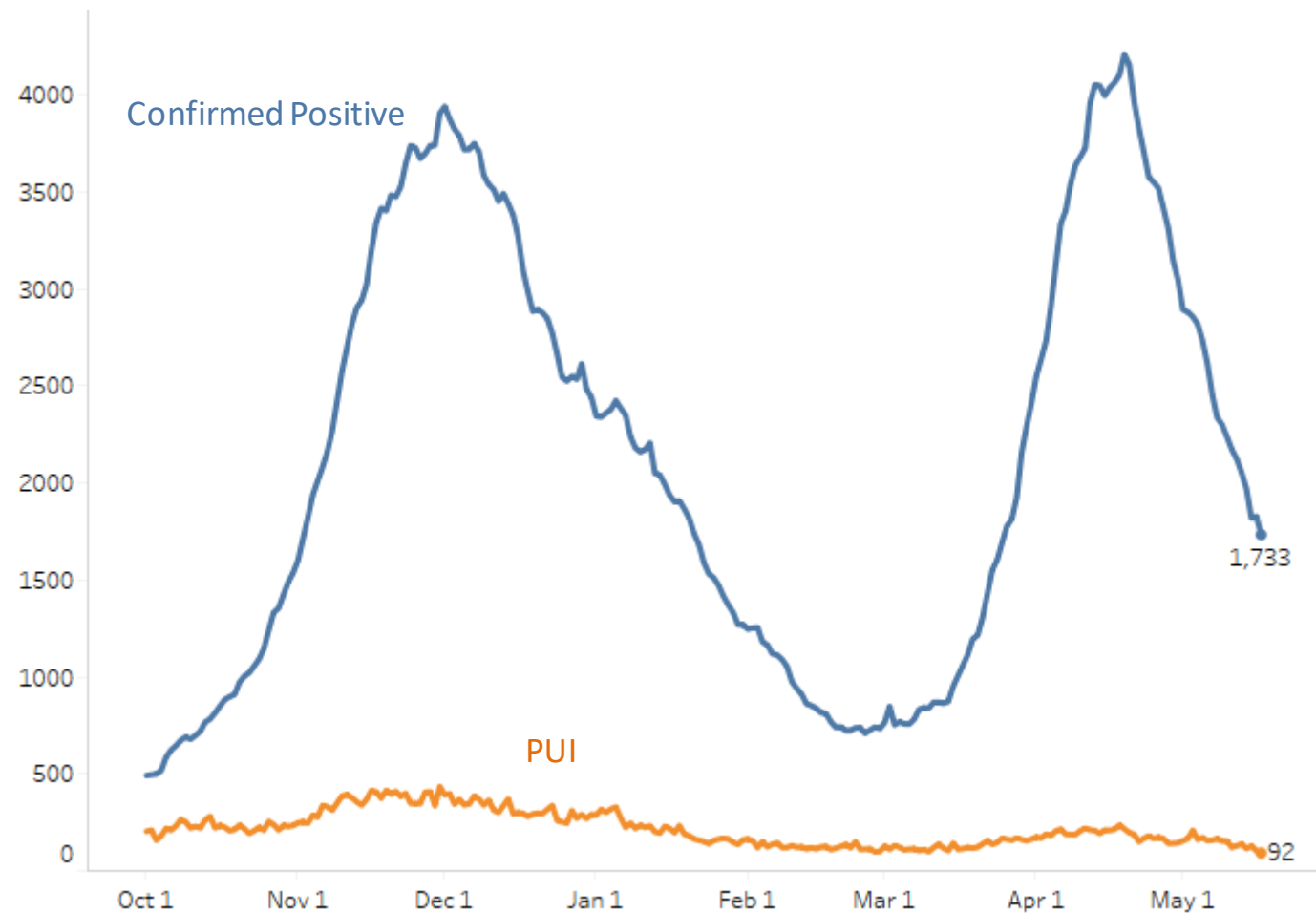
* Highest 7-day avg. hosp. adm. following Spring 2021 surge

¶ Total may not reflect state due to missing age data

- Currently, there are approximately 225 daily hospital admissions for COVID-19
- Over the past week, those 60-69 have seen the highest avg. daily hospital admissions (41 admissions)
- Since the Apr 14 high, those 40-69 have seen the > 60% decrease in avg. daily hospital admissions

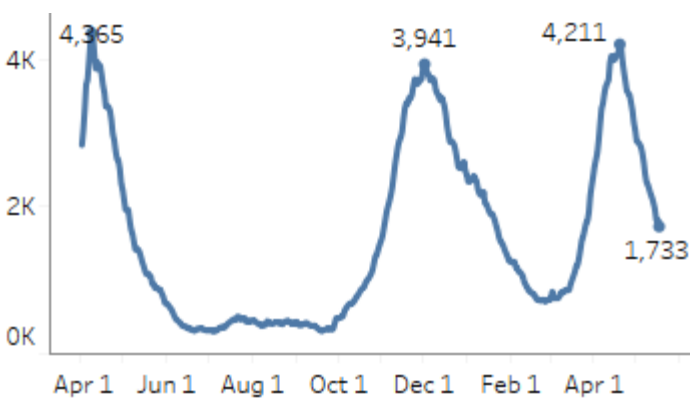
Statewide Hospitalization Trends: Total COVID+ Census

Hospitalization Trends 10/1/2020– 5/17/2021
Confirmed Positive & Persons Under Investigation (PUI)



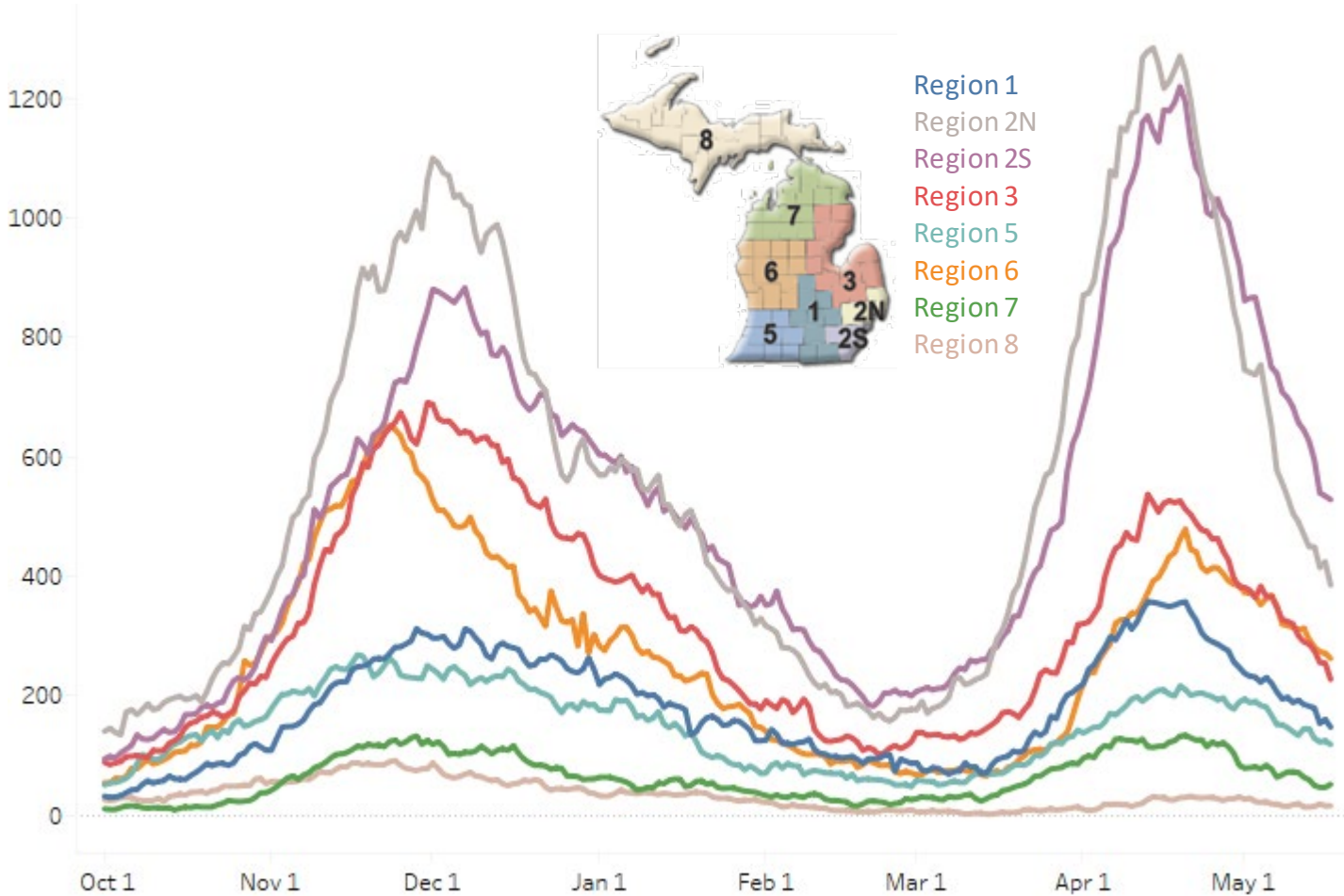
COVID+ census in hospitals continues to decline from the April 19th peak. This week is down 23% from the previous week (previous week was down 22%).

Hospitalized COVID Positive Long Term Trend (beginning March 2020)



Statewide Hospitalization Trends: Regional COVID+ Census

Hospitalization Trends 10/1/2020– 5/17/2021
Confirmed Positive by Region



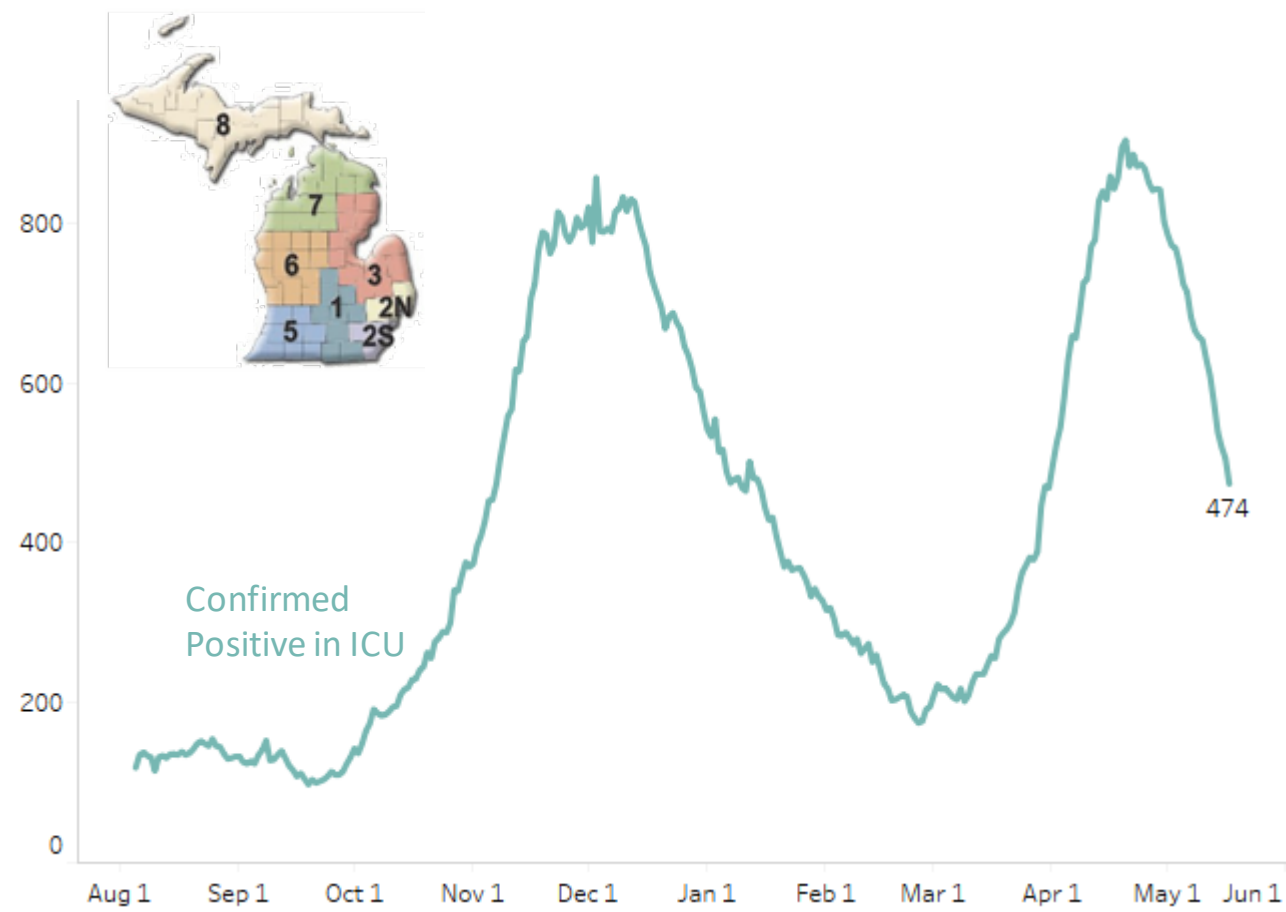
All regions are showing decreasing hospital census trends this week.

Only 2 regions (Regions 2S and 3) are at or above 200/M population hospitalized.

| Region | COVID+ Hospitalizations (% Δ from last week) | COVID+ Hospitalizations / MM |
|-----------|----------------------------------------------|------------------------------|
| Region 1 | 147 (-22%) | 136/M |
| Region 2N | 385 (-24%) | 174/M |
| Region 2S | 528 (-23%) | 237/M |
| Region 3 | 227 (-29%) | 200/M |
| Region 5 | 118 (-15%) | 124/M |
| Region 6 | 262 (-17%) | 179/M |
| Region 7 | 51 (-29%) | 102/M |
| Region 8 | 15 (-12%) | 48/M |

Statewide Hospitalization Trends: ICU COVID+ Census

Hospitalization Trends 8/1/2020 – 5/17/2021
Confirmed Positive in ICUs



Overall, the census of COVID+ patients in ICUs has decreased 28% from last week, with all regions showing decreases.

Region 6 continue to have >30% ICU beds occupied with COVID patients.

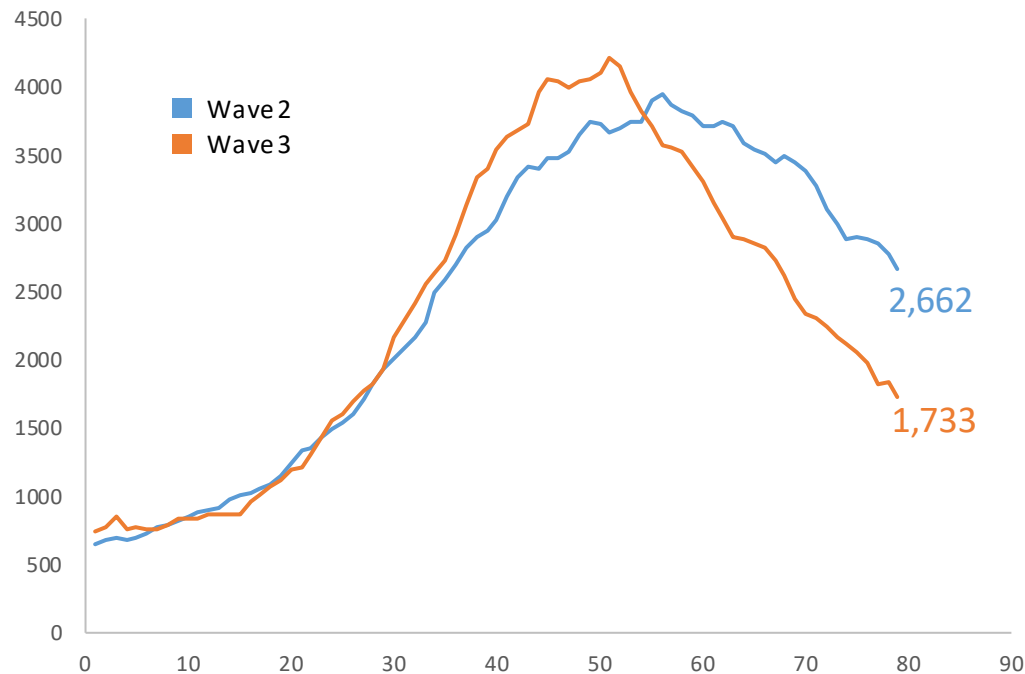
| Region | Adult COVID+ in ICU (% Δ from last week) | Adult ICU Occupancy | % of Adult ICU beds COVID+ |
|-----------|------------------------------------------|---------------------|----------------------------|
| Region 1 | 44 (-12%) | 83% | 22% |
| Region 2N | 86 (-30%) | 79% | 15% |
| Region 2S | 156 (-27%) | 82% | 20% |
| Region 3 | 60 (-38%) | 89% | 16% |
| Region 5 | 24 (-33%) | 75% | 14% |
| Region 6 | 79 (-23%) | 83% | 31% |
| Region 7 | 19 (-30%) | 70% | 10% |
| Region 8 | 6 (0%) | 63% | 10% |

Hospital bed capacity updated as of 5/13

Wave 2 and 3 Comparison through 5/17

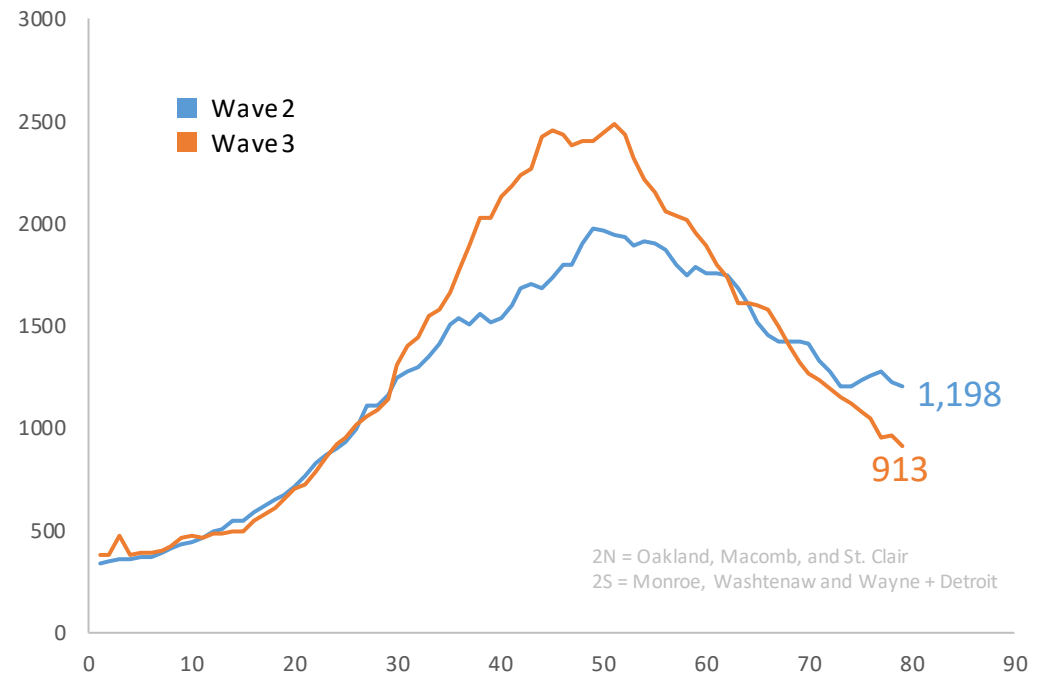
- Statewide hospitalizations are 35% lower than the previous wave when aligned to the same starting point. Regions 2N and 2S hospitalizations are 24% lower. This wave while peaking at a higher level has shown a more rapid decline perhaps reflecting the impact of rising vaccination rates over time.

Covid 19 hospitalizations, State overall



Days since start date: Oct 7th 2020 for Wave 2
and Feb 28th 2021 for Wave 3

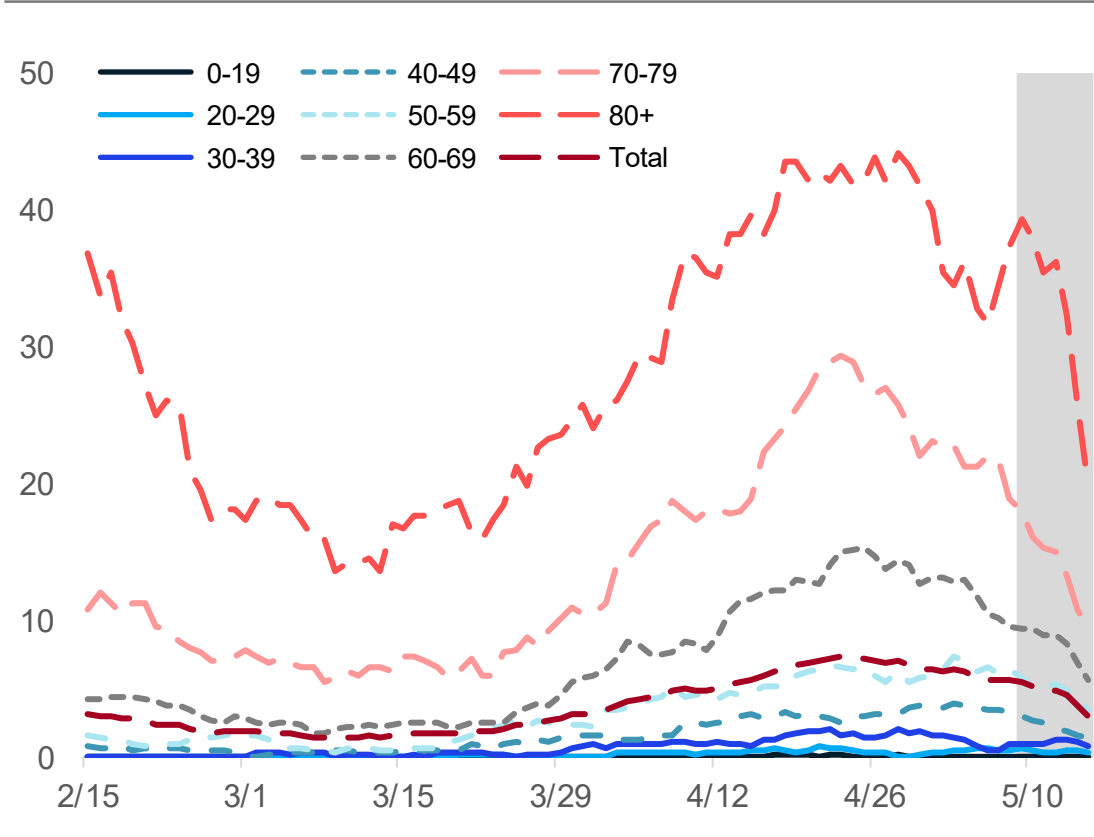
Covid 19 hospitalizations, 2N + 2S



Days since start date: Oct 14th 2020 for Wave 2
and Feb 28th 2021 for Wave 3

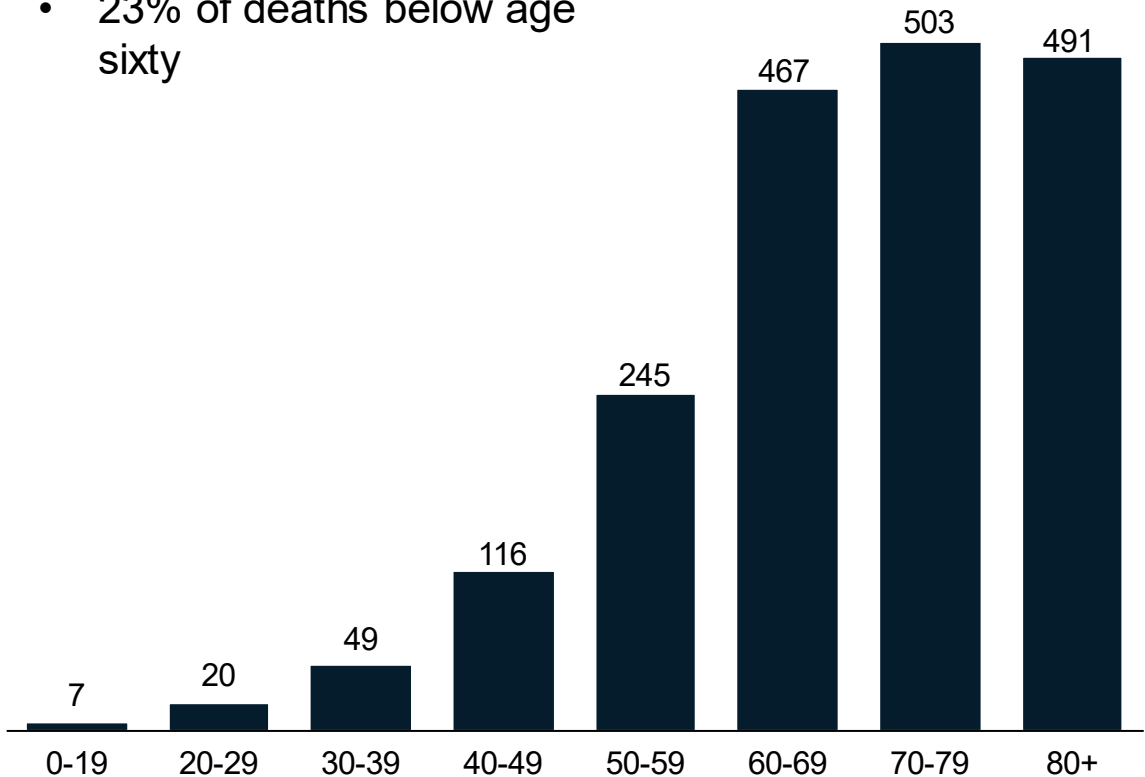
Average and total new deaths, by age group

Daily confirmed and probable deaths per million by age group (7 day rolling average)



Total confirmed and probable deaths by age group (past 30 days, ending 5/8/2021)

- 23% of deaths below age sixty

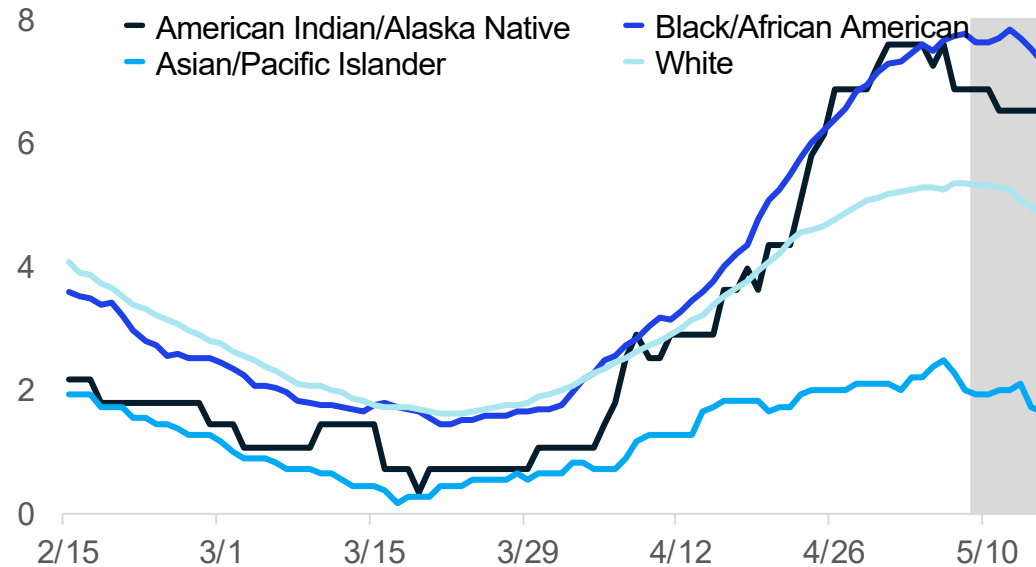


Note: Death information sourced from MDHHS and reflects date of death of confirmed and probable cases.

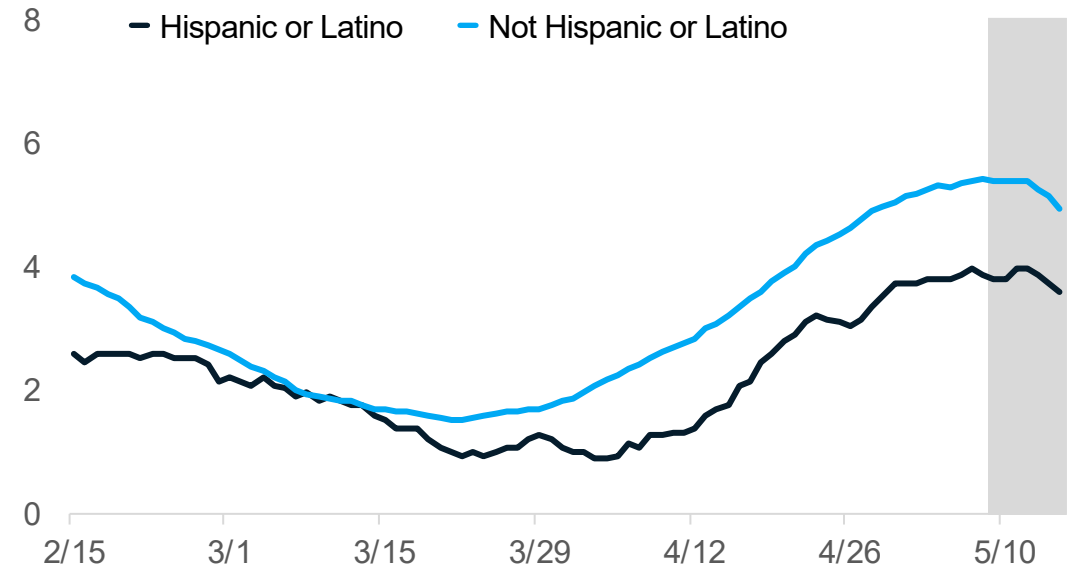
Source: MDHHS – Michigan Disease Surveillance System

30-day rolling average daily deaths per million people by race and ethnicity

Average daily deaths per million people by race



Average daily deaths per million people by ethnicity



Updates since last week:

- Deaths are a lagging indicator of cases
- All racial and ethnic groups are seeing a decrease or plateau in COVID deaths
- **American Indian/Alaskan Natives, Blacks and Non-Hispanics/Latinos have the most reported deaths per capita**
- Deaths are not adjusted for confounders (e.g., age, sex, comorbidities)

How is public health capacity?

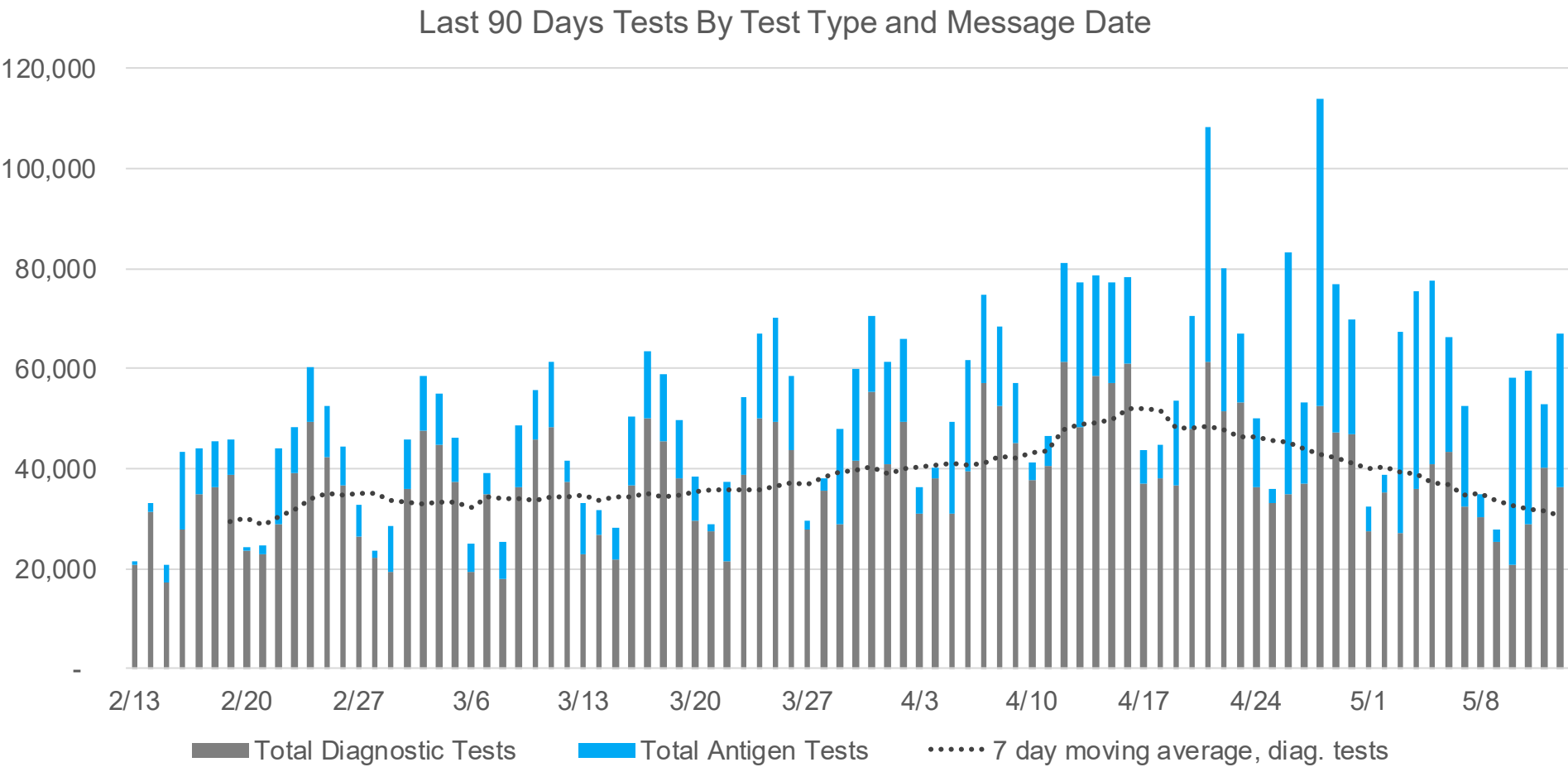
Diagnostic testing volume (PCR and antigen) has decreased from last week

- PCR testing decreased since last week
- Percent of antigen tests have decreased since last week

Cases identified for investigations has declined

- Number of cases not investigated this week (5,793) is 43% lower than prior week (10,165)
 - As cases have decreased, the percent of interviews attempted has improved
- Consistent low proportion of cases interviewed with a source of known infection (indicating community acquisition)
- Consistent low proportion of those quarantining when their symptoms begin (indicating no effective halt in community transmission)

Daily diagnostic tests, by message date



Weekly Update

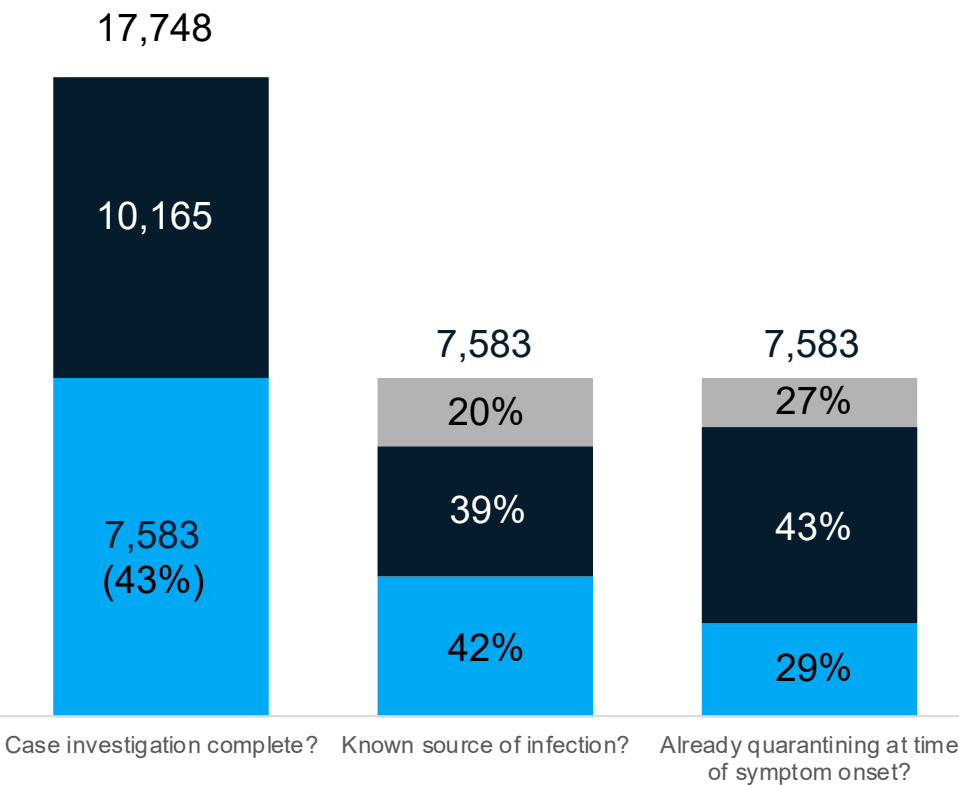
- 50,416 rolling 7-day average daily diagnostic tests reported to MDHHS (PCR + Ag) (↓)
- 30,640 average daily PCR tests (↓)
- 39.2% are antigen tests over the past week (↓)
- 8.5% positivity in PCR tests (↓)

New Case Investigation Metrics (Statewide)

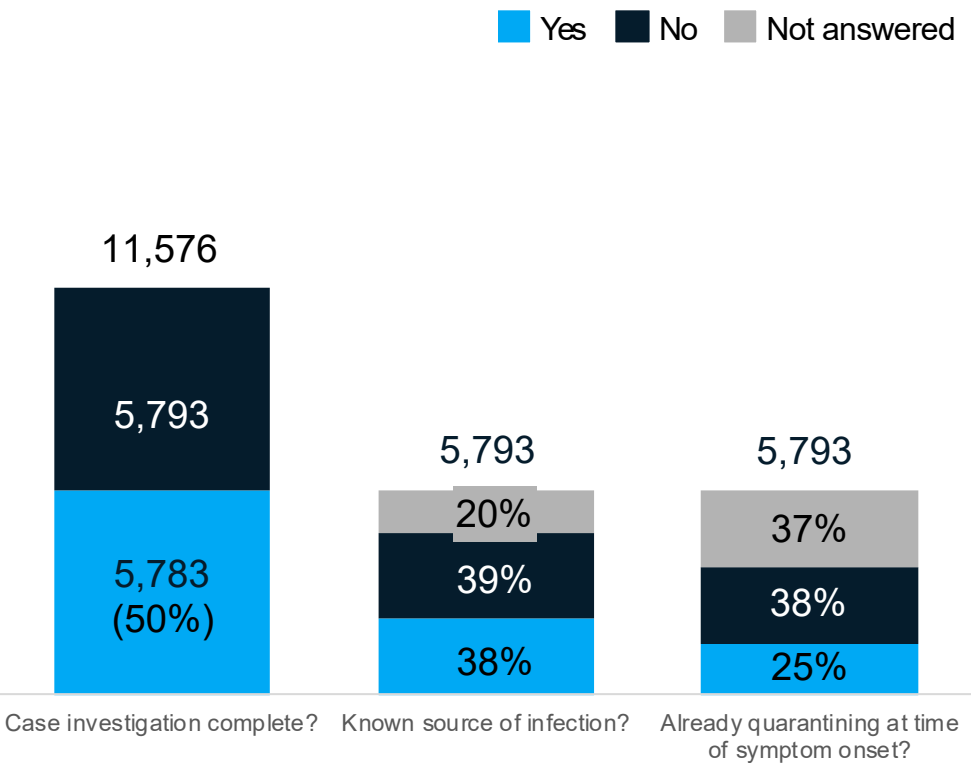
New Communicable Disease metrics this week:

- Number of cases identified for investigations (↓), and percent of completed interviews (↑) have improved from prior week
- 38% of investigated cases having a known source (42% last week, 43% week prior)
- 25% of investigated cases noted that they were quarantining before symptoms (29% last week)

05/01-05/07 Case report form information



05/08-05/14 Case report form information



COVID-19 Vaccination

Eligibility

- FDA [authorized](#) Pfizer-BioNTech COVID-19 Vaccine for emergency use in adolescents 12 and older.
- [Advisory Committee on Immunization Practices](#) meeting on May 12 to discuss a recommendation for the use of this vaccine for the prevention of COVID-19 in persons aged 12 years and older.

Administration

- 9th state in doses delivered, first doses provided and number of completed individuals
- 77.4% adjusted administration ratio (excluding federal entities, [CDC channel portfolio](#) 5/16/2021)
- Weekly doses administered declined for four weeks

Coverage

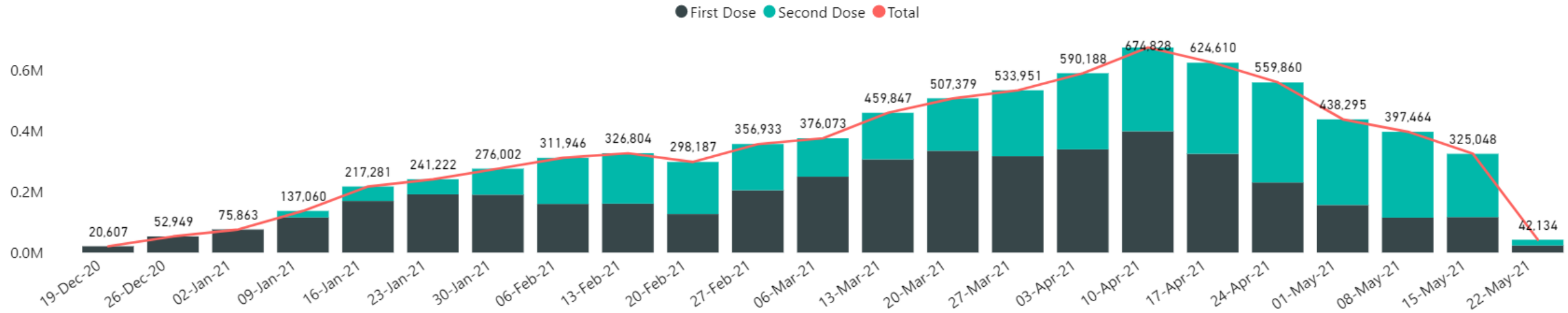
- 56.5% of MI residents age 16+ initiated vaccination and 48.1% completed the series ([CDC data tracker](#) 5/18/21)
- Coverage is highest among 65-75 and 75+ age groups, but more than 68.5% of people 50-64 have started vaccine
- Initiation coverage was highest among Asian, Native Hawaiian or Pacific Islander individuals (MI Covid Vaccine Dashboard 5/18/21)

Vaccinated Individuals Who Test Positive

- Number of cases who are fully vaccinated (n=5,555) is less than 1% of people fully vaccinated.

Doses Delivered and Administered, and Coverage as of 5/18

COVID Vaccine Doses Administered by Date / Week Ending Date (K = Thousand, M = Million)



10,399,215 doses delivered to Michigan providers*

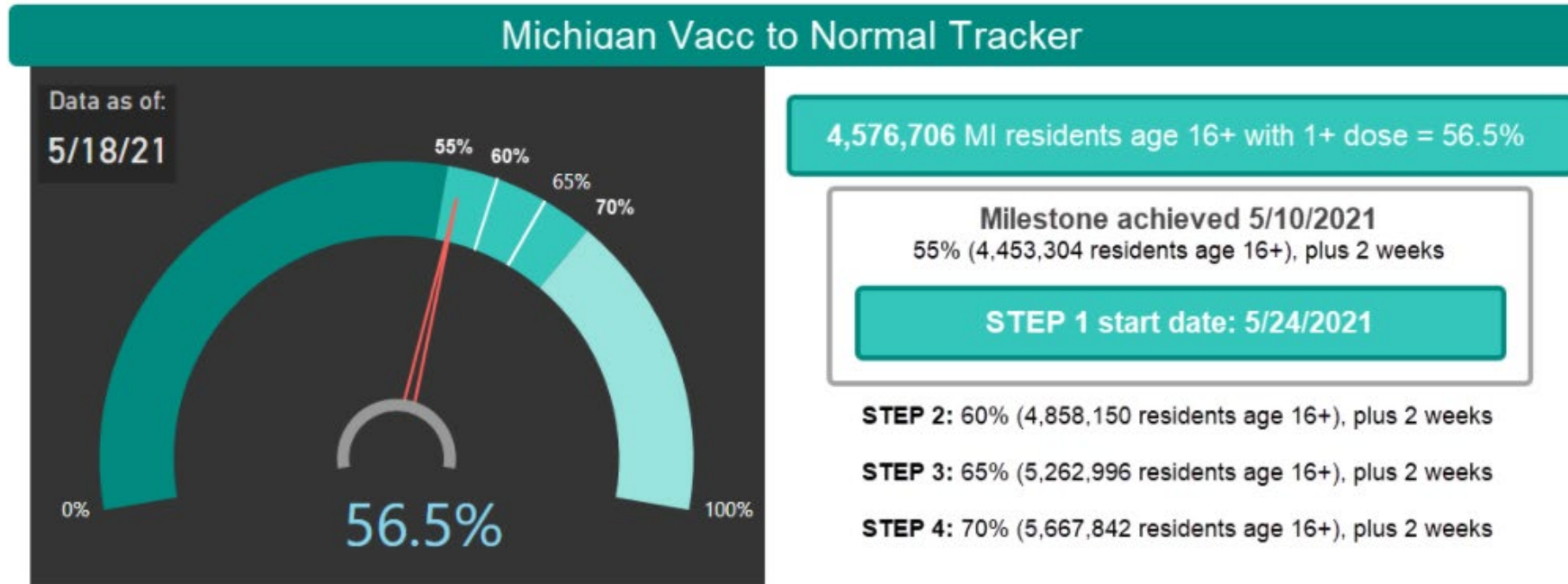
8,073,206 doses Administered (CDC tracker) – MI detail on 7,844,531

77.4% adjusted administration ratio (excluding federal entities, [CDC channel portfolio](#) 5/16/2021) – 77.2% last week

- Last three weeks less than 500,000 doses administered in a week
- 325,048 doses administered last week (down ~61,000 doses over previous week). Loss continues in first doses.

*Includes state allocated doses ordered by State of Michigan, SOM allocation transferred to federal programs, and federal doses from federal programs to Michigan providers. Does not include federal doses sent to federal providers (i.e., Veteran's Administration hospitals, federal prison system, or Department of Defense programs). The State of Michigan does not have control over how much vaccine is allocated or administered by Federal program.

56.5% of 16+ years have had at least one dose of vaccine

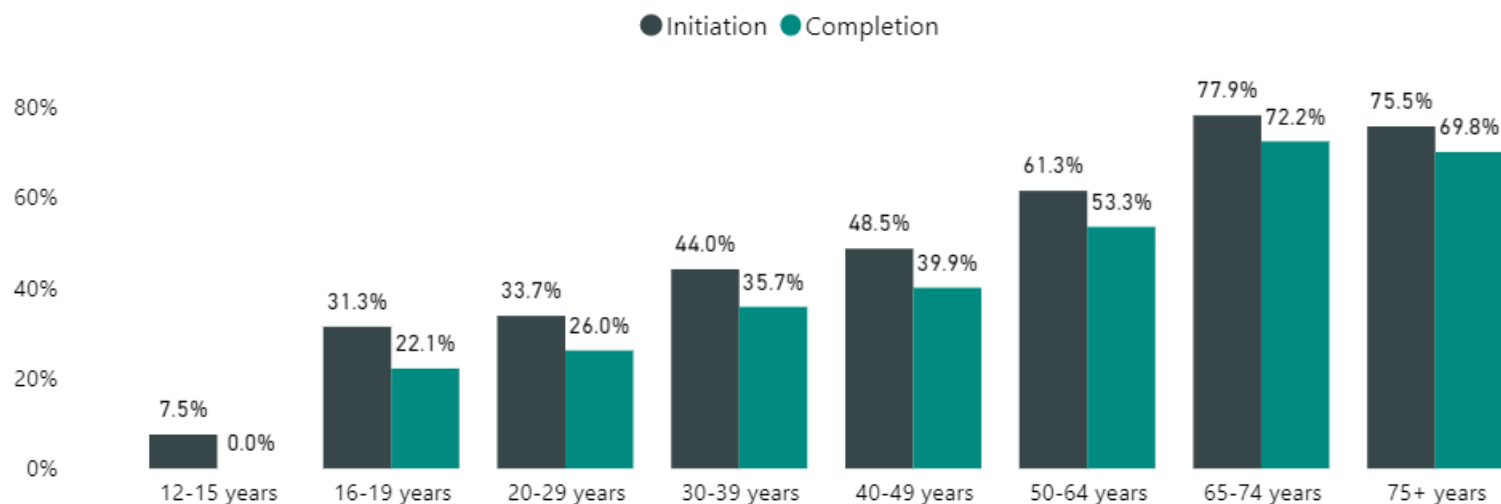


Up 1.5% from 5/10 when Michigan achieved first milestone

Up 1.2% from last week

Coverage Demographics as of 5/18/2021

Coverage by Age Group



3,892,489 people completed series (CDC)

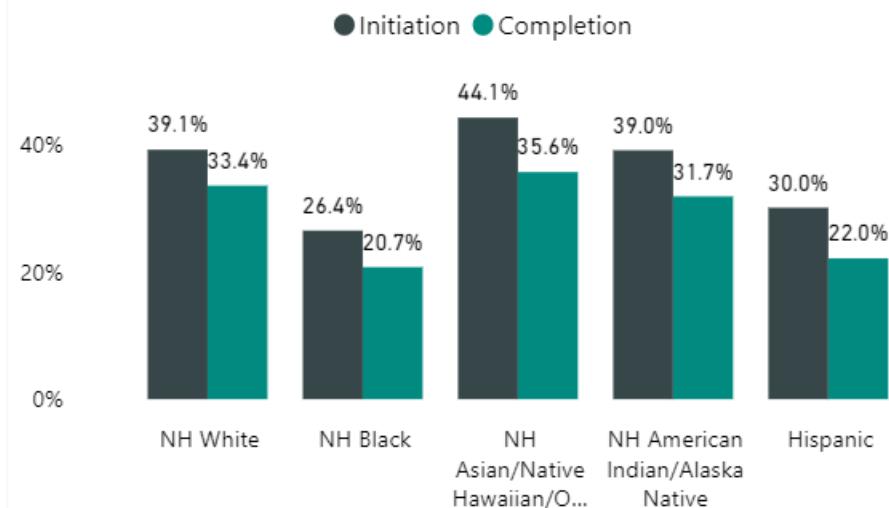
Age Group (Michigan dashboard)

- 68.5% of those 50+ started vaccine series vs 36.9% of 12-49 years
- 61.6% people aged 50 or older have completed their vaccine series

Race/Ethnicity for 12 and older

- Initiation coverage highest among those of Asian, Native Hawaiian or Pacific Islander Race (44.1%) then NH (Non-Hispanic) White (39.1%), American Indian (39.0%), NH Black or African American (26.4%) Races, and Hispanic (30%) ethnicity
- 24.0% data missing or unknown

Coverage by Race - State Level



Potential COVID-19 Vaccination Breakthrough Cases

Michigan part of CDC's nationwide investigation ([COVID-19 Breakthrough Case Investigations and Reporting | CDC](#))

Michigan Data (1/1/21 through 5/11/21):

- 5,555 cases met criteria based on a positive test 14 or more days after being fully vaccinated
- Less than 1% of people who were fully vaccinated met this case definition
 - Includes 72 deaths (67 persons age 65 years or older)
 - 232 cases were hospitalized
- Vaccine breakthrough cases are expected. COVID-19 vaccines are effective and are a critical tool to bring the pandemic under control. However, no vaccines are 100% effective at preventing illness in vaccinated people. There will be a small percentage of fully vaccinated people who still get sick, are hospitalized, or die from COVID-19.
- There is some evidence that vaccination may make illness less severe for those who are vaccinated and still get sick.
- To date, no unexpected patterns have been identified in the case demographics or vaccine characteristics among people with reported vaccine breakthrough infections.

Science Round Up

Modeling of Future COVID-19 Cases, Hospitalizations, and Deaths by Vaccination Rates and Nonpharmaceutical Intervention Scenario

- CDC published national projections through September 2021
- Cases, hospitalizations, and deaths likely to continue to decline

Vaccine Coverage: State by State Comparison

- Michigan coverage is mid-range among neighboring midwestern states
- Michigan is top third among US states and territories

CDC updated recommendations for fully vaccinated individuals

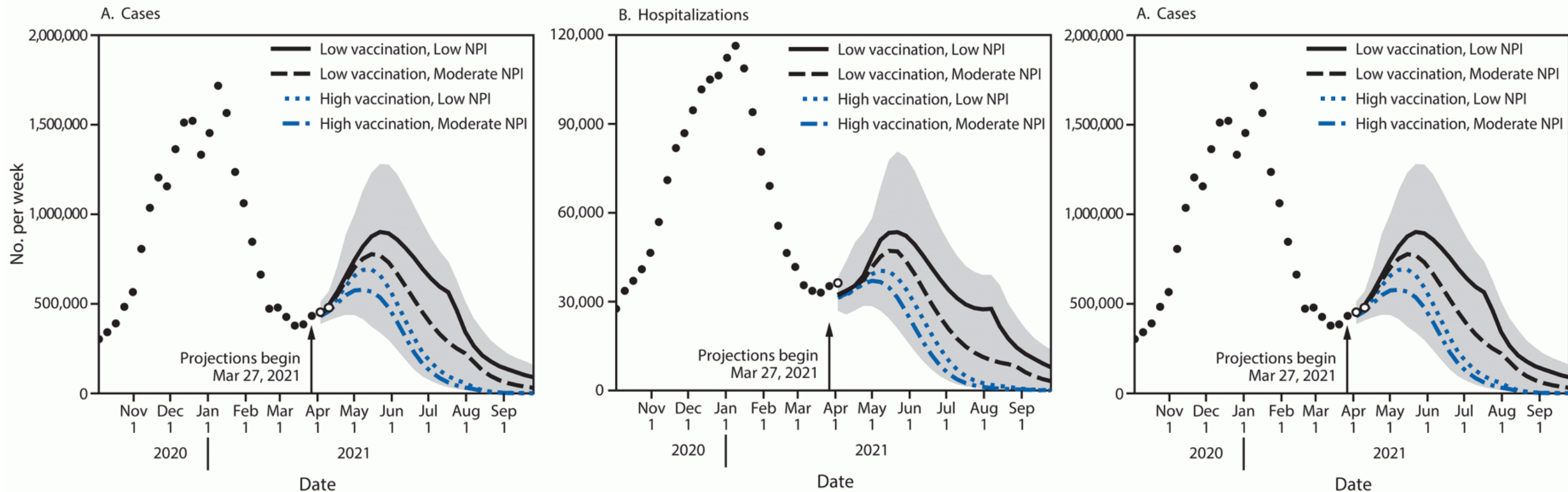
- Fully vaccinated people may resume activities without wearing masks or physically distancing, except where required by federal, state, local, tribal, or territorial laws, rules and regulations
- Individuals not fully vaccinated should continue follow public health recommendations to prevent infection and spread of SARS-CoV-2

COVID-19, vaccinations, and Infertility

- Claims of infertility in women caused by the COVID-19 *vaccine* are based on no credible data
- American College of Obstetricians & Gynecologists recommends that pregnant women have access to COVID-19 vaccines
- COVID-19 *infection* is associated with erectile dysfunction

New CDC modeling study suggests that with vaccination and moderate interventions, cases, hospitalizations, and deaths likely to continue to decline

- Ensemble of 6 models from different research groups
- Examined high & low vaccination scenarios, low and moderate non-pharmaceutical interventions
- Cases following April 1 have followed more of the lower end of the confidence region, although there has been a lot of variation state-to-state

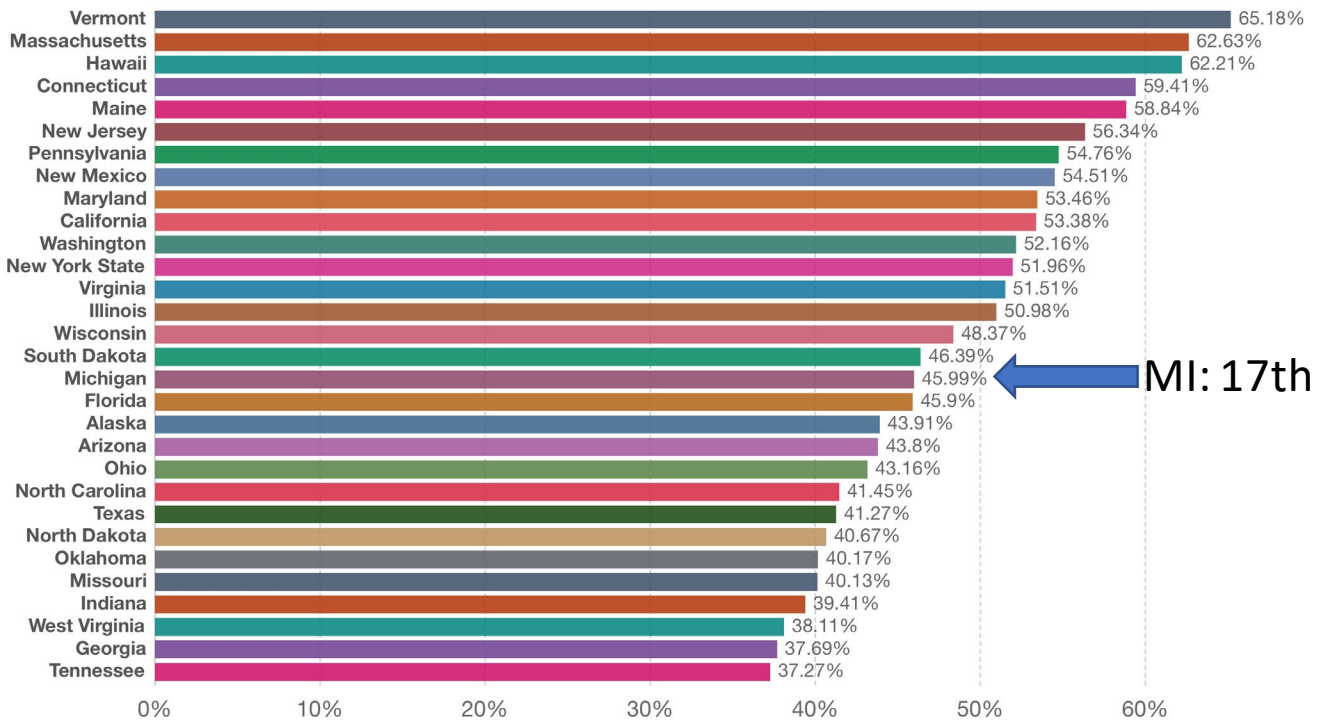


Vaccines state-by-state: Michigan 1+ dose coverage is mid-range among neighboring midwestern states, and in the top 1/3 among US states and territories

US: Share of people that have received at least one dose of COVID-19 vaccine, May 17, 2021

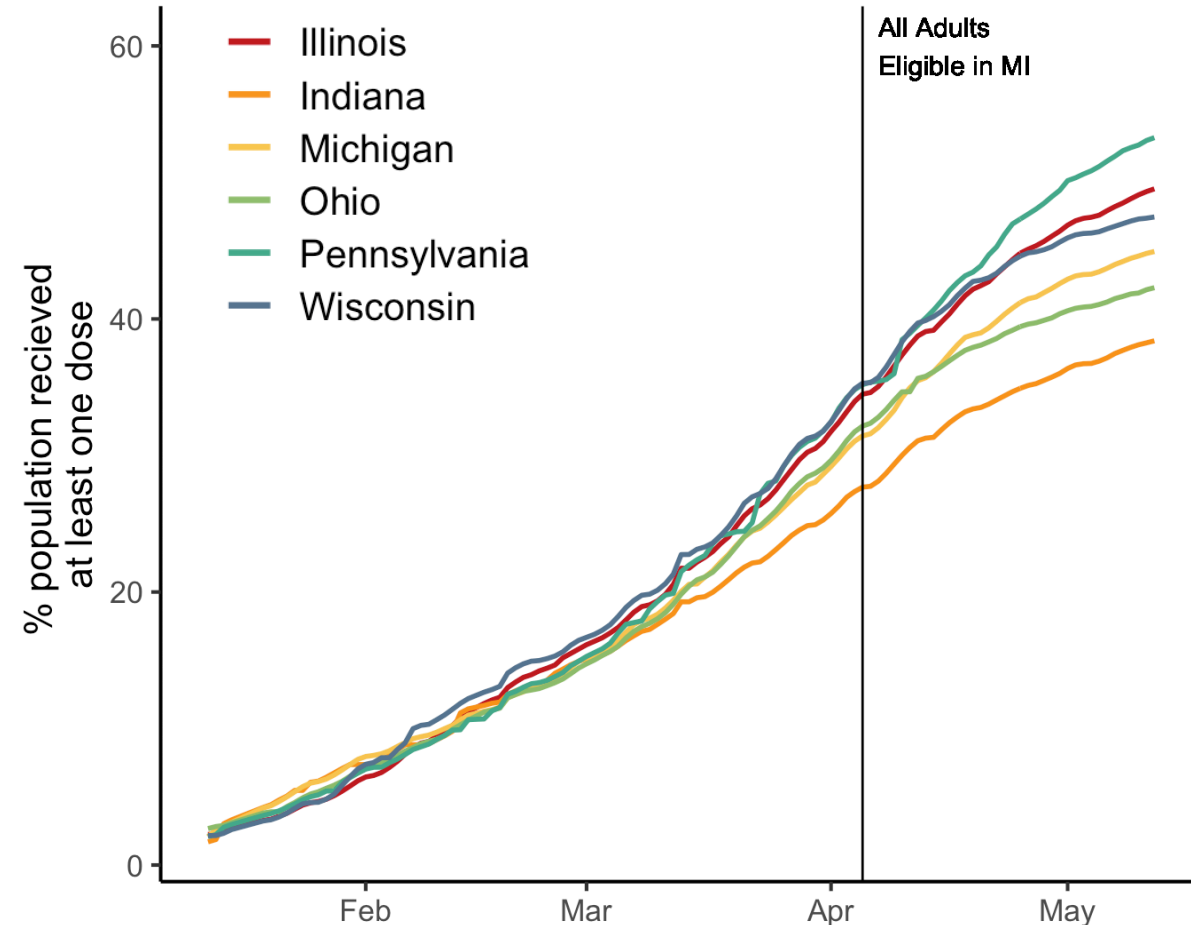
Share of the total population that have received at least one vaccine dose. This may not equal the share that are fully vaccinated if the vaccine requires two doses.

Our World in Data













Source: Centers for Disease Control and Prevention – Last updated May 17, 21:50 (Eastern Time)

OurWorldInData.org/us-states-vaccinations • CC BY



















Source: [Our World in Data](#), [CDC](#)

Updated CDC Guidance on Masks

| | | Unvaccinated People | Examples of Activities | Fully Vaccinated People |
|------------|--|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| | | | Outdoor | |
| Safest | |  | Walk, run, wheelchair roll, or bike outdoors with members of your household |  |
| | |  | Attend a small, outdoor gathering with fully vaccinated family and friends |  |
| | |  | Attend a small, outdoor gathering with fully vaccinated and unvaccinated people |  |
| Less Safe | |  | Dine at an outdoor restaurant with friends from multiple households |  |
| Least Safe | |  | Attend a crowded, outdoor event, like a live performance, parade, or sports event |  |

Updated CDC Guidance on Masks


| Indoor | | | |
|------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Less Safe |  | Visit a barber or hair salon |  |
| |  | Go to an uncrowded, indoor shopping center or museum |  |
| |  | Attend a small, indoor gathering of fully vaccinated and unvaccinated people from multiple households |  |
| Least Safe |  | Go to an indoor movie theater |  |
| |  | Attend a full-capacity worship service |  |
| |  | Sing in an indoor chorus |  |
| |  | Eat at an indoor restaurant or bar |  |
| |  | Participate in an indoor, high intensity exercise class |  |

Who remains at risk?

No change in CDC Mask Guidance



- K-12
- Corrections
- Long term care
- Public transportation

 **Age under 12 years**
(Vaccines not available)
1.4 million in MI

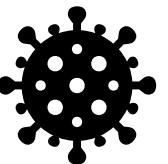
Immunocompromised
(vaccines may be less effective)



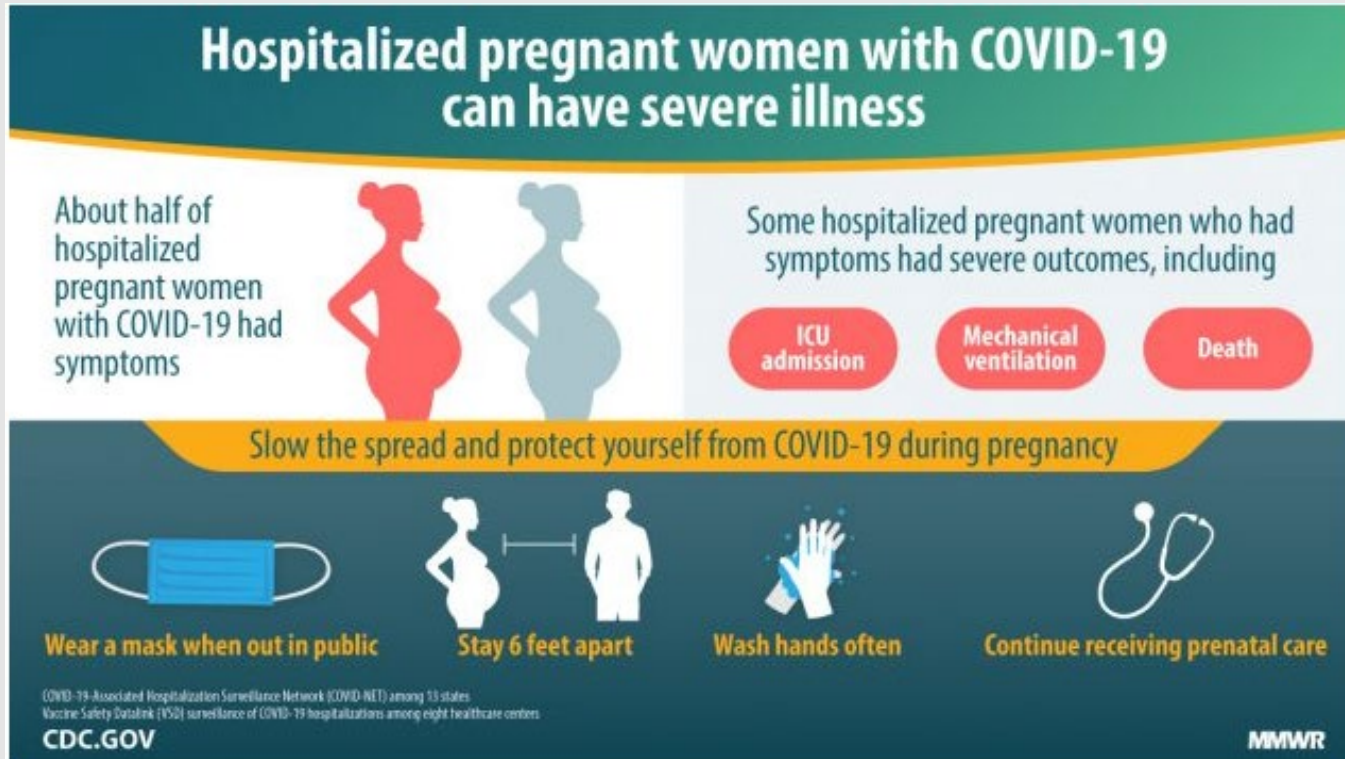
Exposure to certain variants
(vaccines may be less effective)



[https://datacenter.kidscount.org/
data/tables/101-child-
population-by-age-group](https://datacenter.kidscount.org/data/tables/101-child-population-by-age-group)



Vaccines and Infertility??



- Claims of infertility in women caused by the COVID-19 vaccine were originally shared on social media by a German doctor and a former Pfizer scientist
 - Based on a theory about a single viral protein
 - No credible data
- We do know that pregnant women with COVID-19 are at risk for severe outcomes
- ACOG recommends that pregnant individuals have access to COVID-19 vaccines

“Mask up to keep it up”: Preliminary evidence of the association between erectile dysfunction and COVID-19

- May be caused by
 - Cardiovascular effects of infection
 - Diminished mental / physical health following COVID-19 infection which impacts libido
- New evidence *suggests* the presence of viral particles in the penile tissue itself

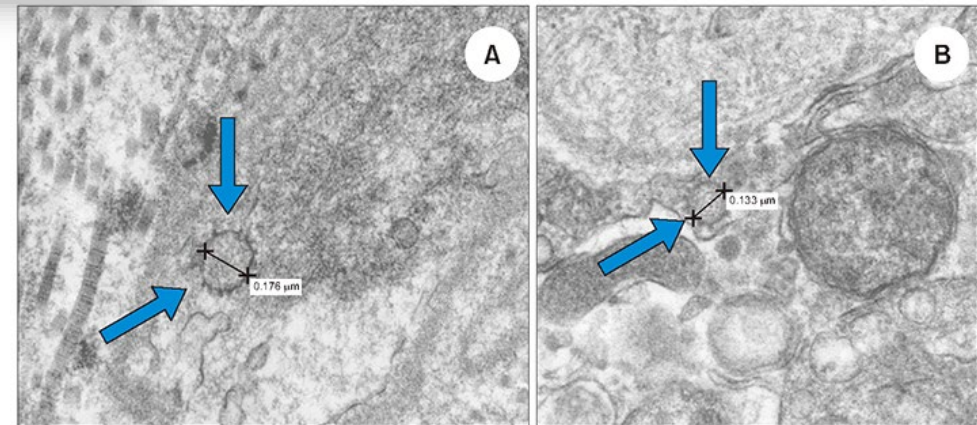


Fig. 1. Ultrastructure features of penile tissue from live seroconverted COVID-19 patients. (A) Coronavirus-like spiky viral particles (arrows) visualized via TEM in the peri-vascular erectile tissue of a live patient who had previously contracted the COVID-19 virus and subsequently seroconverted. Particle diameter measurement indicated on image. (B) Coronavirus-like spiky viral particles (arrows) visualized via TEM in the peri-vascular erectile tissue of a live patient who had previously contracted the Covid-19 virus and subsequently seroconverted. Particle diameter measurement indicated on image.

World J Mens Health. 2021;39:e22.

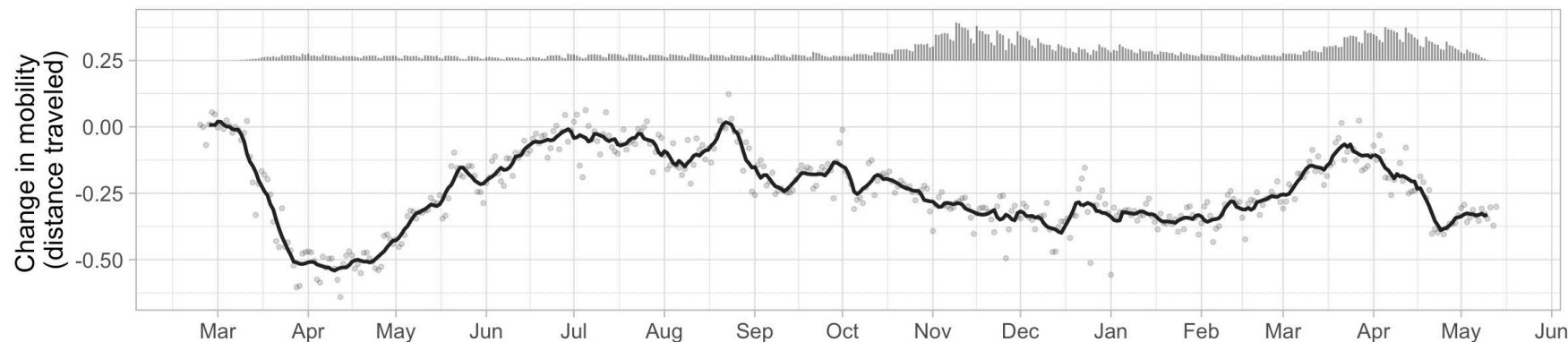
<https://doi.org/10.5534/wjmh.210055>

Copyright © 2021 Korean Society for Sexual Medicine and Andrology

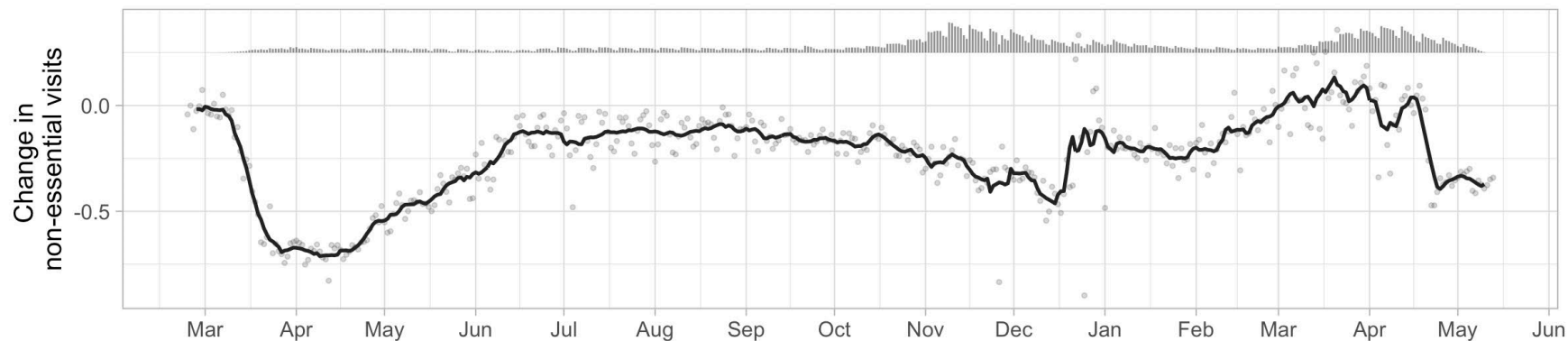
Unacast mobility patterns in MI

- All metrics recently decreased preceding case decreases
- Most recent data appears to be more plateaued at levels similar to winter
- Cases shown as bars at top of each chart
- Data through 5/13/21 (data as of 5/17/21)

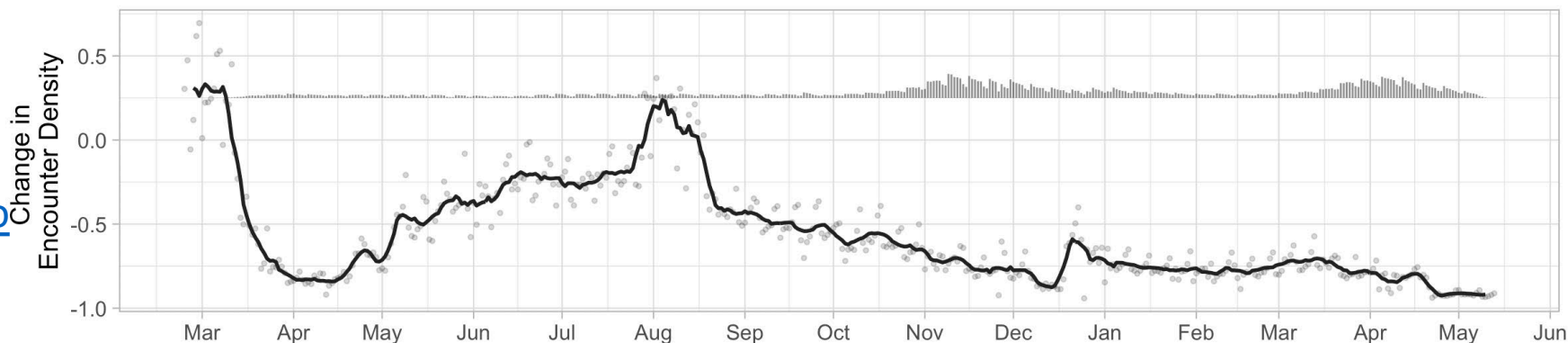
Change in average mobility



Change in non-essential visits



Difference in encounter density



Unacast social distancing scoreboard

<https://www.unacast.com/covid19/social-distancing-scoreboard>

